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# ALL HANDS

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JANUARY 2004

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**U.S. NAVY**  
**Owner's & Operator's**  
**Manual**





### [On the Front Cover]

Photo Illustration of USS *Lassen* (DDG 82). *Lassen* is part of USS *Carl Vinson* (CVN 70) Carrier Strike Force.

Photo by PHAN Chris Valdez

### [Next Month]

We traveled to Egypt to see what National Medical Research Unit 3 is doing to keep our Sailors disease-free. *All Hands* also brings you an up-close look at the medical assistance provided to the people of Ghana during the West Africa Training Cruise.



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*All Hands* looks at what the Navy did this year through photographs from around the fleet.

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## 12 Bases

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The Navy's boundaries can be found all over the globe.

[Number 1041]

**AllHANDS**

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# Year in Review

**U.S. Marines** assigned to **2nd Battalion/2nd Marines, Echo Company, 24th Marine Expeditionary Unit (MEU) Special Operations Capable (SOC)** disembark from an Amphibious Assault Vehicle to conduct a live-fire training exercise.

Photo by PH2 Michael Sandberg

## Nov'02



## Dec'02



**ABH3 Kevin Murray** directs an **F-14 Tomcat** on the bow of **USS Kitty Hawk (CV 63)**. The carrier is the world's only permanently forward-deployed aircraft carrier and operates out of Yokosuka, Japan.

Photo by PH3 Todd Frantom

## Jan'03

**SN Leanne Connelly** applies gold paint to one of two 30-ton Navy standard stockless anchors aboard **USS John C. Stennis (CVN 74)**. The carrier was recently honored with the "2002 Golden Anchor Award" for retention excellence.

**Stennis** is currently undergoing a Planned Incremental Availability (PIA) period having new technology installed and integrated to extend the operational capabilities of the warship.

Photo by PH2 Jayme T. Pastorio



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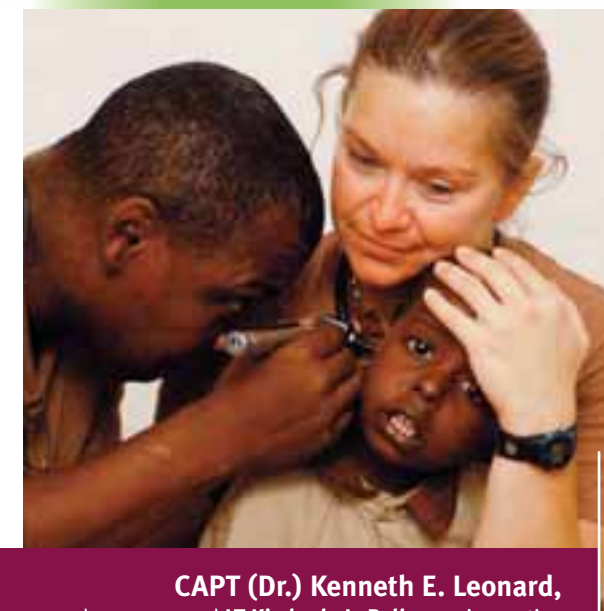
## Jan'03



**ADM Vern Clark, Chief of Naval Operations (CNO)**, speaks with Sailors and Marines assigned to Naval Support Activity, Bahrain. "Be ready," he said, repeating the President's orders to the military regarding the global war on terrorism.

Photo by PH2 Bob Houlihan

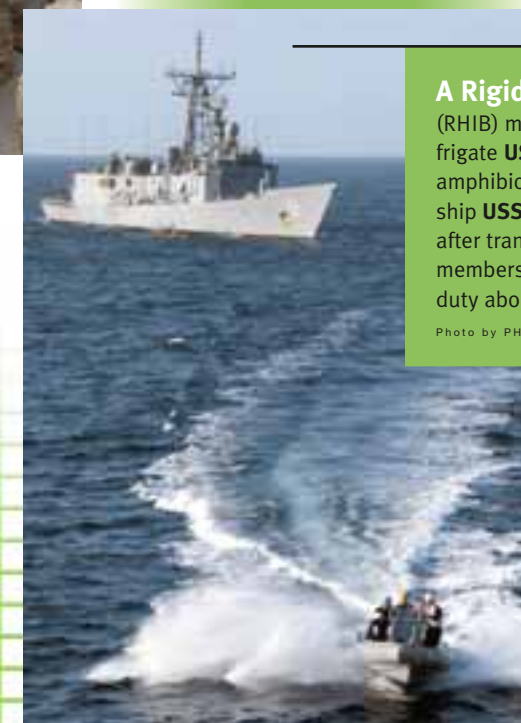
## Feb'03



**CAPT (Dr.) Kenneth E. Leonard**, a general surgeon, and **LT Kimberly L. Bell**, a perioperative nurse, check the ears of a Djiboutian boy during their visit to several local clinics near Damerdjog, Djibouti, during **Combined Joint Task Force Horn of Africa** operations.

Photo by USMC Cpl. Paula M. Fitzgerald

## Mar'03



**A Rigid Hull Inflatable Boat (RHIB)** makes a return trip from the frigate **USS Gary (FFG 51)**, to the amphibious command and control ship **USS Mount Whitney (LCC/JCC-20)** after transferring two new crew members who were reporting for duty aboard the frigate.

Photo by PH2 Kurtis Korwan



# Year in Review

**Apr '03**



AE1 Jason Van Buren assigned to Helicopter Combat Support Squadron (HC) 8 fires a .50-caliber machine gun while AMCS Pete Durrant acts as safety observer during a gun shoot qualification.

Photo by PH2 Michael Sandberg

**May '03**

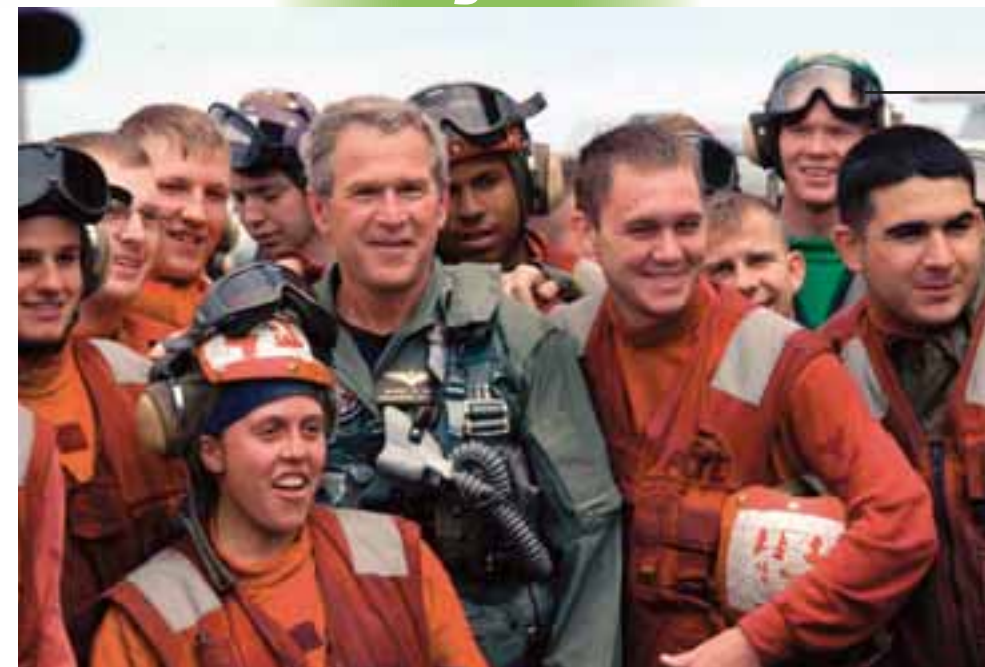
During a promotion ceremony U.S. Marine Corps Cpl. Raymond Wells assigned to Lima Company 3rd Battalion/7th Marines raises his right hand and takes the Non-Commissioned Officer oath after being promoted to corporal while serving his country in support of Operation Iraqi Freedom.

Photo by USMC Lance Cpl. Nathan Alan Heusdens



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**May '03**



Sailors get their photo taken with President George W. Bush after "NAVY 1," an S-3B Viking assigned to Sea Control Squadron (VS) 35, successfully trapped aboard USS Abraham Lincoln (CVN 72). Bush is the first sitting President to trap aboard an aircraft carrier at sea.

Photo by PH3 Tyler Clements

**Jun '03**

**Jun '03**

Friends and family members of Sailors aboard the hospital ship USNS Comfort (T-AH 20) await the ship's return from deployment in support of Operation Iraqi Freedom.

Photo by AM1 John E. Reynolds



The ballistic-missile submarine USS Rhode Island (SSBN 740) cruises the Atlantic Ocean as crew members work up on deck.

Photo by JO3 B.L. Keller





# Year in Review

## U.S. NAVY Owner's & Operator's AllHANDS Manual 2004

Jun'03



**BMSN Isaac Hollister** operates a Rigid Hull Inflatable Boat (RHIB) carrying personnel assigned to the guided-missile frigate **USS Rodney M. Davis (FFG 60)**. The ship's Vessel Boarding Search and Seizure Team, was returning to the ship following a Maritime Interdiction Operation. **Rodney M. Davis** is deployed in support of **Operation Iraqi Freedom**.

Photo by PH2 Christopher Jordan

Jul'03



### Ship's sponsor and former First Lady

**Nancy Reagan** is greeted by an appreciative audience as she orders the men and women of **USS Ronald Reagan (CVN 76)** to "bring the ship to life" at the commissioning ceremony. The ship is named in honor of her husband, former President **Ronald Reagan**, the 40th President of the United States. The ship's motto is "Peace Through Strength," a phrase coined by Reagan, who is credited with bringing an end to the Cold War and rebuilding the U.S. military.

Photo by PH3 Rusty Black

Aug'03



A rescue swimmer assigned to **Helicopter Combat Support Squadron (HC) 6** hovers over a Rigid Hull Inflatable Boat during recovery operations. The swimmers were conducting Combat Search and Rescue training with the members of **Special Boat Team (SBT) 20** off the coast of Virginia.

Photo by PH2 Michael Sandberg

Jul'03

### USS Key West (SSN 722)

pulls into her homeport in Pearl Harbor, upon returning from deployment in support of **Operation Iraqi Freedom**.

Photo by JOC David Rush



Jul'03



Retired **CAPT Jon Clark** and **RADM Donald Arthur**, Commander **National Naval Medical Center (NNMC)**, unveil a portrait of **CAPT Laurel Clark** by Bill McIntosh. The portrait was unveiled at a dedication ceremony held at NNMC's new **Laurel Clark Memorial Auditorium**. Clark was one of the seven astronauts who lost their lives aboard the **Columbia** space shuttle.

Photo by JO1 AnTuan Guerry



# Year in Review

Aug '03



Local school girls show off their new chalk boards donated by the friends and families of U.S. Navy Seabees assigned to **Naval Mobile Construction Battalion (NMCB) 4**. Navy Seabee units have been participating in the extensive reconstruction of schools, hospitals and bridges throughout Iraq, in support of **Operation Iraqi Freedom**.

Photo by LT Brandon Harding

Sept '03



LT Nick Vande Griend, assigned to **Electronic Attack Squadron (VAQ) 139**, simulates a survivor of an ejection scenario by "popping smoke" and using his radio to communicate with a **Naval Air Station Whidbey Island Search and Rescue (SAR) helicopter**.

Photo by PH2 Michael B.W. Watkins

Aug '03



During a counter-drug operation in the Eastern Pacific, **USS Rentz (FFG 46)** crew members combat a fire set by suspected drug traffickers in an attempt to escape and destroy evidence. During this operation, the guided-missile frigate recovered 37 kilos of cocaine and detained five suspects, who were turned over to proper authorities for prosecution.

U.S. Navy photo

# U.S. NAVY Owner's & Operator's AllHANDS Manual 2004

Sept '03



Workers from the **Amite, La.**, foundry pour molten steel recycled from the World Trade Center, into the mold of the bow stem of the Transport Dock ship **New York (LPD 21)**. Approximately 24 tons of steel were salvaged from the World Trade Center, which was destroyed in the terrorist attacks of Sept. 11, 2001. Nearly 10 percent of the steel was lost when the foundry superheated the 48,780 lbs. of steel to 2,850 degrees Fahrenheit.

Photo by PH1 Dean Dunwoody

Oct '03



An **HH-60H Seahawk**, assigned to **Helicopter Anti-Submarine Squadron (HS) 4**, takes off from the flight deck of **USS John C. Stennis (CVN 74)** under smoke-filled skies from nearby San Diego County firestorms. The multiple fires have burned more than 300,000 acres of land, and this catastrophic event is considered one the state's deadliest blazes in more than a decade.

Photo by PH3 Joshua Word

Sept '03

Rain and heavy winds from Hurricane Isabel flooded portions of fleet parking at **Naval Station Norfolk**, trapping some vehicles in water as high as their windows, as the hurricane proceeded inland. Hurricane Isabel, a Category 2 hurricane, made landfall near Cape Hatteras, N.C., approximately 100 miles south of Norfolk.

Photo by PH1 Michael Pendergrass





# Demographics



Photo by JO3 Gorwin Colbert

## Navy Active-Duty Personnel by Rank/Grade (Oct. 31, 2003)

E-9	3,149
E-8	7,055
E-7	24,511
E-6	53,271
E-5	76,119
E-4	62,885
E-3	58,471
E-2	23,318
E-1	12,823
<b>TOTAL Enlisted</b>	<b>321,602</b>

O-10	10
O-9	30
O-8	69
O-7	108
O-6	3,486
O-5	7,036
O-4	10,470
O-3	17,079
O-2	7,895
O-1	7,195
W-5	1
W-4	347
W-3	429
W-2	866
<b>TOTAL Officers</b>	<b>55,021</b>
<b>TOTAL Cadets/Midshipmen</b>	<b>4,293</b>
<b>GRAND TOTAL</b>	<b>380,916</b>

## Naval Reserve Force (September 2003)

<b>Drilling Selected Reserve</b>	
Officers	16,494
Enlisted	56,648
<b>Total*</b>	<b>73,142</b>

\*Excludes 1,819 Selected Reserve (SELRES) on ADSW, but includes SELRES on recall.

<b>Full-time Support (FTS)**</b>	
Officers	1,772
Enlisted	13,044
<b>Total***</b>	<b>14,816</b>

\*\* For DOD reporting purposes, FTS personnel are considered Active Guard and Reserve (AGR), who are SELRES. However, in Navy budget allocations, FTS personnel are counted separately from drilling SELRES.

\*\*\* Includes some SELRES on ADSW

## Individual Ready Reserve

Officers	14,705
Enlisted	56,435
<b>Total****</b>	<b>71,140</b>

\*\*\*\* Includes some 4,556 VTU members

## Standby Reserve

Officers	3,829
Enlisted	222
<b>Total</b>	<b>4,051</b>

## Retired Reserve

Officers	80,627
Enlisted	389,543
<b>Total*****</b>	<b>470,170</b>

\*\*\*\*\*Include 82,388 Fleet Reservists

## Active-duty Enlisted (E-1 to E-9) End Strengths by Navy Occupational Group (Dec. 31, 2002)

Group I – Deck	32,730
Group II – Ordnance	18,693
Group III – Electronics	16,651
Group V – Administrative	68,544
Group VI – Miscellaneous	19,445
Group VII – Engineering & Hull	59,853
Group VIII - Construction	9,268
Group IX - Aviation	84,870
Group X - Medical	23,899
Group XI - Dental	3,204
<b>Total</b>	<b>337,157</b>

## Active-duty Officer End Strengths by Navy Occupational Group (Dec. 31, 2002)

<b>Unrestricted Line Officer</b>	
Fleet Support (110X)	452
Surface Warfare (111X/116X)	8,780
Sub Warfare* (112X/117X)	3,697
Special Warfare* (113X/118X)	576
Special Ops (114X/119X)	403
Aviation Generalist (130X)	405
Pilot (131X/139X)	8,985
Flight Officer (132X/137X)	4,462
<i>*Not open to women</i>	

## Restricted Line Officers

Human Resource (120X)	599
Prospective Staff Corps (19XX)	221
Eng Duty (14XX)	817
Aviation Eng/Maint (15XX)	908
Information Professional (160X)	334
Cryptology (161X/164X)	790
Merchant Marine (162X/167X)	6
Intelligence (163X)	1,441
Public Affairs (165X)	198
Oceanography (18XX)	393

## Staff Corps Officers

Medical Corps (210X)	4,017
Dental Corps (220X)	1,278
Medical Service Corps (230X)	2,713
Nurse Corps (290X)	3,175
Sr. Health Care Executive (270X)	13
JAG Corps (250X)	820
Supply Corps (310X/316X)	2,775
Chaplain Corps (410X)	907
Civil Engineer (510X)	1,323

## Limited Duty Officers

Line Service (61XX)	1,548
Line Submarine (62XX)	351
Line Aviation (63XX)	898
Line General (64XX)	1,269
Staff Corps (65XX)	212

## Warrant Officers

Line Surface (71XX)	692
Line Submarine (72XX)	108
Line Aviation (73XX)	423
Line General (74XX)	367
Staff Corps (75XX)	110
<b>Total</b>	<b>56,446</b>

Sources: Bureau of Naval Personnel; Chief of Naval Personnel (N-132C); SPAWAR ITC New Orleans

# U.S. NAVY Owner's & Operator's AllHANDS' Manual 2004

## Numbers from Operation Iraqi Freedom 2003

### Operation Iraqi Freedom

Total power projection sorties .. 5,171  
Total support sorties ..... 2,770  
Total overall sorties ..... 7,941

Percentage of total coalition power projection sorties. .... 65 percent  
Percentage of total coalition support sorties ..... 35 percent

Average number of power projection sorties per day (34 days) ..... 152  
Average number of power projection sorties per week (4.9 weeks) .. 1,055  
Average number of support sorties per day (34 days) ..... 82  
Average number of support sorties per week (4.9 weeks) ..... 565  
Average number of sorties per day (34 days) ..... 234  
Average number of sorties per week (4.9 weeks) ..... 1,620

Highest number of Navy sorties (April 2, 2003) ..... 423  
Power Projection .... 269 (63 percent)  
Support ..... 156 (37 percent)

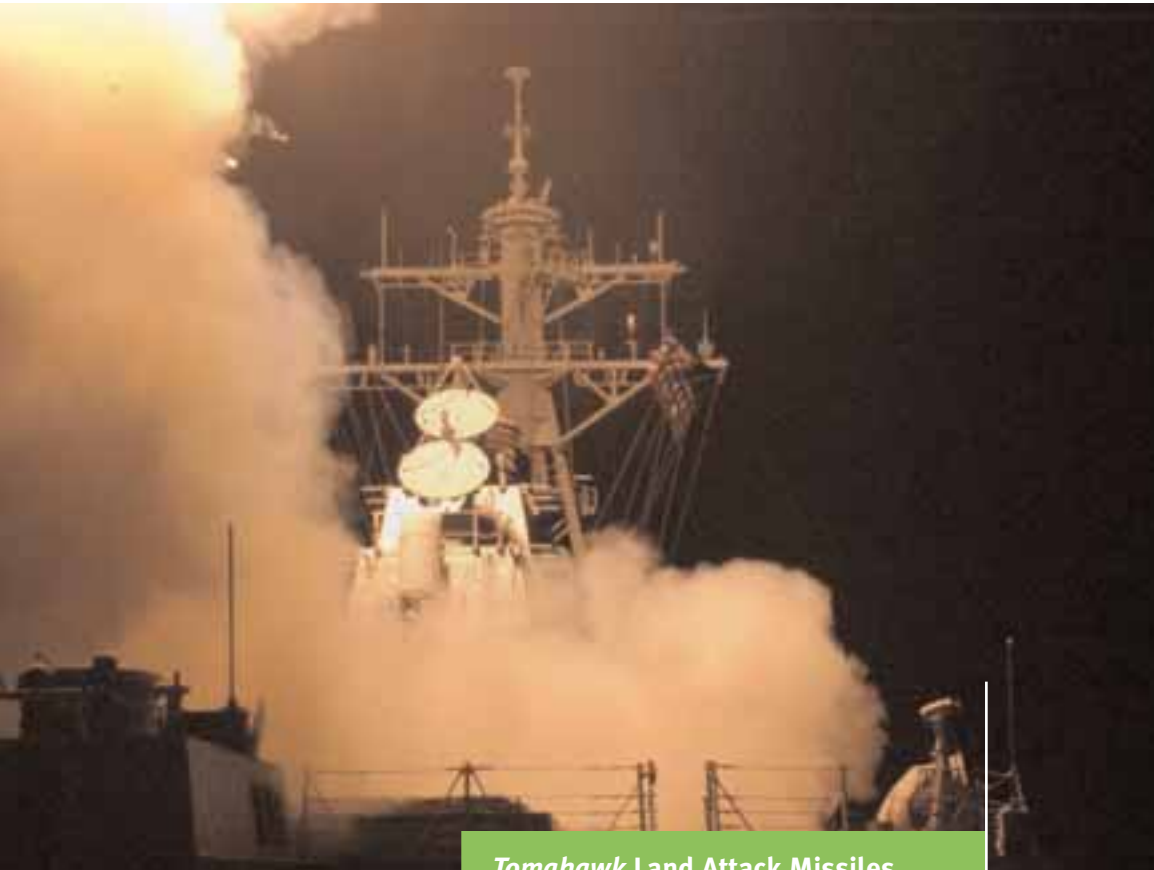
Navy and Marine Corps aircraft flew more than 8,000 sorties and delivered nearly 9,000 precision-guided munitions.

Total number of *Tomahawk* Land Attack Missile (TLAM) ..... 802  
Average number of TLAMs per day (31 days) ..... 26  
Date of first TLAMs fired (number fired) ... March 19, 2003 (39)

Number of TLAMs fired on the night of "shock and awe," March 21, 2003 ... 381  
Last night of TLAMs (number fired) ..... April 3, 2003 (35)

More than 800 *Tomahawks* were fired from 35 coalition ships (one-third were sub launched) during Operation *Iraqi Freedom*.

EOD teams have responded to 4,500 improvised explosive devices (IED) calls in the last three months of 2003, and have collected more than 2,000 pounds of unexploded ordnance. In 2003, forces have queried more than 5,000 vessels, boarded close to 3,000 vessels, and diverted approximately 430 vessels. Coalition maritime forces have



**Tomahawk Land Attack Missiles** launch from the ship's forward and aft MK-41 vertical launch systems (VLS) aboard the guided-missile destroyer USS *Donald Cook* (DDG 75). The cruise missiles were among the first to be fired in support of Operation *Iraq Freedom*.

Photo by JOC Alan J. Baribeau

confiscated as much as 10,000 tons of fuel since August, which will be returned to the Iraqis.

More than 3,000 U.S. Navy Seabees served under the newly configured First Marine Expeditionary Force (1 MEF) Engineer Group (1 MEG) in Kuwait and Iraq during OIF.

During Operation *Iraqi Freedom*, more than 50 percent of our force was forward deployed.



# Bases

## UNITED STATES

### California

Corona Division, Naval Surface Warfare Center, Corona  
Naval Air Weapons Station China Lake  
Naval Base Coronado  
Naval Air Facility El Centro  
Naval Air Station Lemoore  
Naval Base Point Loma  
Naval Base Ventura County Point Mugu  
Naval Postgraduate School, Monterey  
Naval Base San Diego  
Naval Weapons Station Seal Beach

### Connecticut

New London Naval Submarine Base

### District of Columbia

Naval Station Activity Washington  
Naval Air Facility Washington  
Naval Research Laboratory

### Florida

Naval Air Station Jacksonville  
Naval Air Station Key West  
Naval Station Mayport  
Coastal Systems Station Dahlgren Division, Naval Surface Warfare Center Panama City  
Naval Air Station Pensacola  
Naval Air Station Whiting Field  
Naval Support Activity Orlando

### Georgia

Naval Air Station Atlanta  
Naval Submarine Base Kings Bay  
Navy Supply Corps School, Athens

### Hawaii

Pacific Missile Range Barking Sands  
Naval Computer and Telecommunications Area Master Station, Pacific, Wahiawa  
Naval Security Group Activity Kunia  
Naval Station Pearl Harbor

### Illinois

Naval Station Great Lakes



**Sailors of USS Kearsarge (LHD 3)** man the rails as they prepare to pull alongside Pier 9 at **Naval Station Norfolk**, for homecoming.

Photo by PH3 Angel Roman-Otero

### Indiana

Crane Division, Naval Surface Warfare Center, Crane

### Louisiana

Naval Air Station Joint Reserve Base New Orleans  
Naval Support Activity New Orleans

### Maine

Naval Air Station Brunswick

### Maryland

Naval Station Annapolis  
United States Naval Academy, Annapolis  
Indian Head Division, Naval Surface Warfare Center Indian Head  
Naval Surface Warfare Center Carderock  
Naval Support Facility Thurmont  
Naval Air Station Patuxent River

### Mississippi

Naval Construction Battalion Center Gulfport  
Naval Air Station Meridian  
Naval Station Pascagoula

### Nevada

Naval Air Station Fallon

### New Hampshire

Portsmouth Naval Shipyard

### New Jersey

Naval Weapons Station Earle  
Naval Air Engineering Station Lakehurst

### New York

Naval Support Unit Saratoga Springs

### Pennsylvania

Naval Air Station Joint Reserve Base Willow Grove  
Naval Support Activity Mechanicsburg  
Naval Surface Warfare Center, Ship Systems Engineering Station Philadelphia

### Rhode Island

Naval Station Newport

### South Carolina

Naval Weapons Station Charleston

### Tennessee

Naval Support Activity Mid South, Millington

### Texas

Naval Air Station Corpus Christi  
Naval Air Station Joint Reserve Base, Ft. Worth  
Naval Station Ingleside  
Naval Air Station Kingsville

# U.S. NAVY Owner's & Operator's AllHANDS' Manual 2004



With **Coronado** as a backdrop, cyclists make their way through a 56-mile bike route around **Naval Air Station North Island**, Calif., during the 25th annual SuperFrog Half-Ironman Triathlon.

Photo by PH1 Aaron Ansarov

### Virginia

Fleet Combat Training Center Atlantic, Dam Neck  
Naval Amphibious Base Little Creek  
Dahlgren Division, Naval Surface Warfare Center Dahlgren  
Naval Station Norfolk  
Norfolk Naval Shipyard  
Naval Support Activity Norfolk  
Naval Air Station Oceana  
Naval Weapons Station Yorktown  
Surface Combat Systems Center Wallops Island  
Naval Administrative Command (JFSC) Norfolk

### Washington

Naval Submarine Base Bangor  
Naval Station Bremerton  
Naval Station Everett  
Naval Air Station Whidbey Island  
Puget Sound Naval Shipyard  
Naval Magazine Indian Island  
Naval Undersea Warfare Center Keyport

### West Virginia

Naval Security Group Activity Sugar Grove

## WORLDWIDE

### Bahamas

Naval Undersea Warfare Center Det. (AUTECH) Andros Island

### Bahrain

Naval Support Activity

### Cuba

U.S. Naval Station Guantanamo Bay

### Diego Garcia

U.S. Naval Support Facility

### Greece

U.S. Naval Support Activity Souda Bay

### Guam

U.S. Naval Forces Marianas Support Activity

### Iceland

U.S. Naval Air Station Keflavik

### Italy

U.S. Naval Air Station Sigonella  
U.S. Naval Support Activity Gaeta  
U.S. Naval Support Activity La Maddalena  
U.S. Naval Support Activity Naples

### Japan

Fleet Activities Sasebo  
U.S. Naval Air Facility Atsugi  
Fleet Activities Yokosuka  
U.S. Naval Air Facility Misawa  
Fleet Activities/U.S. Naval Air Facility Okinawa

### Puerto Rico

U.S. Naval Station Roosevelt Roads

### Singapore

U.S. Naval Regional Contracting Center

### South Korea

Fleet Activities Chinhae

### Spain

U.S. Naval Station Rota

### United Kingdom

Joint Maritime Facility, St. Mawgan  
U.S. Naval Activities, London  
U.S. Naval Air Facility Mildenhall

Source: CNI (N51)



**The Piscataqua River** is all that separates **Portsmouth Naval Shipyard** from the city of Portsmouth, N. H.

Photo by JO1 (SCW/SS) James Pinsky



# MCPON Reading List

The following books comprise the Master Chief Petty Officer of the Navy's Naval Heritage/Core Values Reading Guide as revised in August 2002. This list is updated periodically as part of the Chief Petty Officer Transition Season. The books are available through the Navy Exchange or the Uniform Center toll-free ordering system.

The Leadership, Management and Personal Growth Reading Guide was updated in July 2002. This reading list is intended as a guide for all enlisted Navy leaders. Each of the books on this list contains sound management concepts and ideas, many of which can be applied to your leadership role in the Navy. Keep in mind that many of these books are written by civilians, for the civilian workplace, so not everything will directly apply.

## "A" list: Required Reading

**A Most Fortunate Ship: Narrative History of Old Ironsides**  
by Tyrone G. Martin

**A Sailor's Log: Recollections of Forty Years of Naval Life**  
by Rear Adm. Robley D. Evans

**A Voice From the Main Deck: Being a Record of the Thirty Years' Adventures of Samuel Leech**  
by Samuel Leech

**Battleship Sailor** by Theodore C. Mason, Edward L. Beach Jr.

**Brave Ship, Brave Men**  
by Arnold S. Lott

**Crossing the Line: A Bluejacket's World War II Odyssey**  
by Alvin Kernan

**Descent Into Darkness: Pearl Harbor 1941: A Navy Diver's Memoir**  
by Edward C. Raymer

**Devotion to Duty: A Biography of Admiral Clifton A.F. Sprague**  
by John F. Wukovits, Thomas B. Buell

**Divided Waters: The Naval History of the Civil War** by Ivan Musicant

**Every Other Day: Letters from the Pacific** by George B. Lucas

**Good Night Officially: The Pacific War Letters of a Destroyer Sailor: The Letters of Yeoman James Orvill Raines**  
by James O. Raines

**In Harm's Way: The Sinking of the USS Indianapolis and the Extraordinary Story of Its Survivors**  
by Doug Stanton (new for 2002)

**In Love and War: The Story of a Family's Ordeal and Sacrifice During the Vietnam Years (Revised and Updated)** by Jim and Sybil Stockdale

**Iwo** by Richard Wheeler

**Life in Mr. Lincoln's Navy**  
by Dennis J. Ringle

**Naked Warriors: The Story of the U.S. Navy's Frogmen** by Frances Douglas Fane and Don Moore

**Nimitz** by E.B. Potter

**Quiet Heroes: Navy Nurses of the Korean War 1950-1953**  
by Frances Omori

**Raiders from the Sea: The Story of the Special Boat Service in World War II** by John Lodwick

**Raiders of the Deep** by Lowell Thomas, Gary E. Weit (photographer)

**Shield and Sword: The United States Navy and the Persian Gulf War**  
by Edward J. Marolda and Robert J. Schneller Jr.

**Ship's Doctor** by Terrence Riley

**Submarine Diary: The Silent Stalking of Japan** by Corwin Mendenhall, I.J. Galantin

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**We Will Stand By You: Serving in the Pawnee, 1942-1945**  
by Theodore C. Mason

**What a Way to Spend a War: Navy Nurse POWs in the Philippines**  
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## "B" List: Reference

**A Quest for Glory: A Biography of Rear Admiral John A Dahlgren**  
by Robert J. Schneller Jr.

**Admiral John H. Towers: The Struggle for Naval Air Supremacy**  
by Clark G. Reynolds

**Air Raid: Pearl Harbor!: Recollections of a Day of Infamy** by Paul Stillwell

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**American Naval History: An Illustrated Chronology of the U.S. Navy and Marine Corps, 1775-Present**  
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**History of the U.S. Navy, Vol. 1, 1775-1941** by Robert W. Love Jr.

**History of the U.S. Navy, Vol. 2, 1942-1991** by Robert W. Love Jr.

**History of U.S. Naval Operations in World War II, Vol.I-XV,**  
by Samuel Eliot Morison

**Honor Bound: American Prisoners of War in Southeast Asia, 1961-1973**  
by Stuart I. Rochester, Frederick T. Wiley

**Kinkaid of the Seventh Fleet: A Biography of Admiral Thomas C. Kinkaid, U.S. Navy**  
by Gerald E. Wheeler

**Longitude: The True Story of a Lone Genius Who Solved the Greatest Scientific Problem of His Time**  
by Dava Sobel

**Magnificent Mitscher**  
by Theodore Taylor, Jeffrey G. Barlow

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by Gavan Daws

**PT 105** by Dick Keresey

**Quiet Warrior: A Biography of Admiral Raymond A. Spruance**  
by Thomas B. Buell

**Revolt of the Admirals: The Fight for Naval Aviation 1945-1950**  
by Jeffrey Barlow, Dean C. Allard

**Rocks & Shoals: Naval Discipline in the Age of Fighting Sail**  
by James E. Valle

**Run Silent, Run Deep** by Edward L. Beach Jr.

**Sea Power: A Naval History**  
by E.B. Potter (editor)

**Submarine Admiral: From Battleguns to Ballistic Missiles**  
by I.J. Galantin

**Submarine Commander: A Story of World War II and Korea**  
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**The First Team: Pacific Naval Air Combat from Pearl Harbor to Midway**  
by John B. Lundstrom

**The First Team and the Guadalcanal Campaign: Naval Fighter Combat from August to November 1942**  
by John B. Lundstrom

**This People's Navy: The Making of American Sea Power**  
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**The Two Ocean War: A Short History of the United States Navy in the Second World War**  
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**U-Boat Commander: A Periscope View of the Battle of the Atlantic**  
by Peter Cremer, Fritz Brustat (naval photographer)

**Unsung Sailors: The Naval Armed Guard in World War II**  
by Justin F. Gleichauf

**War at Sea: A Naval History of World War II** by Nathan Miller

**War Beneath the Sea: Submarine Conflict During World War II**  
by Peter Padfield

**We Pulled Together and Won! Personal Memories of the World War II Era** by Reminisce Books

## Leadership, Management and Personal Growth

**Built to Last: Successful Habits of Visionary Companies**  
by James Collins and Jerry Porras

**Changing the Game: Organizational Transformations of the First, Second, and Third** by Eric G. Flamholtz, Yvonne Randle and Howard Schultz

**Decision Traps: Ten Barriers to Brilliant Decision-Making and How to Overcome Them** by J. Edward Russo

**Deep Change: Discovering the Leader Within** by Robert E. Quinn

**Futurize Your Enterprise: Business Strategy in the Age of the E-customer**  
by David Siegel

**Imaginization: New Mindsets for Seeing, Organizing and Managing**  
by Gareth Morgan

**In Athena's Camp: Preparing for Conflict in the Information Age**  
by John Arquilla, et al.

**Leadership and Self-deception: Getting Out of the Box**  
by Arbinger Institute

**Leadership is an Art** by Max DePree

**Leadership Without Easy Answers**  
by Ronald Heifetz

**Leading Change** by John P. Kotter

**Managing at the Speed of Change**  
by Daryl R. Conner

**The Cluetrain Manifesto: The End of Business as Usual** by Doc Searls, Christopher Locke, Rick Levine

**The Digital Economy: Promise and Peril in the Age of Networked Intelligence** by Don Tapscott

**The Digital Estate: Strategies for Competing, Surviving and Thriving in an International World**  
by Chuck L. Martin Jr.

**The Human Side of Intranets: Content, Style, and Politics**  
by Jerry W. Koehler, et al.

**The Leadership Engine: Building Leaders at Every Level**  
by Noel M. Tichy and Eli B. Cohen

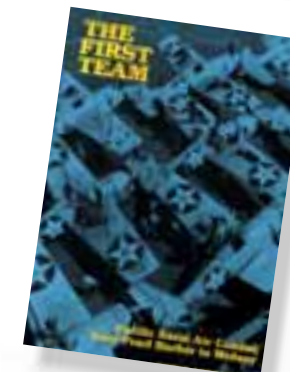
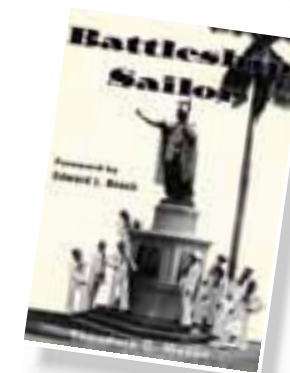
**The Lexus and the Olive Tree: Understanding Globalization**  
by Thomas L. Friedman

**The Other 90% : How to Unlock Your Vast Untapped Potential for Leadership and Life**  
by Robert K. Cooper

**The Power of Alignment: How Great Companies Stay Centered and Accomplish Things** by George Labovitz and Victor Rosansky

**Who Moved My Cheese? An Amazing Way to Deal With Change in Your Work and in Your Life** by Spencer Johnson, Kenneth Blanchard

Source: [www.chinfo.navy.mil/navypatlb/mcpont/readguide.html](http://www.chinfo.navy.mil/navypatlb/mcpont/readguide.html), Sept. 10, 2002





# Warfare Pins & Badges

U.S. NAVY  
Owner's & Operator's  
AllHANDS' Manual 2004

				
Astronaut	Naval Astronaut (NFO)	Naval Aviator	Naval Aviation Observer and Flight Meteorologist	Flight Surgeon
				
Flight Nurse	Naval Flight Officer (NFO)	Aviation Experimental Psychologist and Aviation Physiologist	Enlisted Aviation Warfare Specialist (EAWS)	Naval Aviation Supply Corps
				
Aircrew	Marine Combat Aircrew	Special Warfare (SEAL)	Special Operations	Special Warfare Combatant-Craft Crewman
				
Surface Warfare Officer	Enlisted Surface Warfare Specialist	Surface Warfare Nurse Corps	Surface Warfare Medical Corps	Surface Warfare Dental Corps
				
Surface Warfare Medical Service Corps	Surface Supply Corps	Submarine (officer)	Submarine (enlisted)	Submarine Medical
				
Submarine Engineering Duty	Submarine Supply Corps	Submarine Combat Patrol	SSBN Deterrent Patrol	SSBN Deterrent Patrol (20 patrols)
				
Seabee Combat Warfare Specialist (officer)	Seabee Combat Warfare Specialist (enlisted)	Naval Parachutist	Basic Parachutist	Naval Reserve Merchant Marine

Source: U.S. Navy Uniform Regulation; Navy Uniform Board

# U.S. NAVY Owner's & Operator's AllHANDS' Manual 2004

								
Integrated Undersea Surveillance System (officer)	Integrated Undersea Surveillance System (enlisted)	Master Explosive Ordnance Disposal Warfare	Senior Explosive Ordnance Disposal Warfare	Basic Explosive Ordnance Disposal Warfare	Fleet Marine Force (FMF) Enlisted Warfare Specialist			
								
Diving (officer)	Diving Medical Officer	Master Diver	Diver (medical technician)	First Class Diver	Second Class Diver	Scuba Diver	Deep Submergence (enlisted)	Deep Submergence (officer)
								
Presidential Service Badge	Vice Presidential Service Badge	Office of the Secretary of Defense	Joint Chiefs of Staff	Recruiting Command for Excellence	Recruiter	Career Counselor	Division Commander for Excellence	Division Commander
								
Command-at-Sea	Command Ashore/Project Manager	Small Craft (officer)	Small Craft (enlisted)	Craftmaster	Small Craft (enlisted)	Small Craft (officer)	Small Craft (enlisted)	Small Craft (officer)
								
Master Chief Petty Officer of the Navy	Force Master Chief Petty Officer	Fleet Master Chief Petty Officer	Command Master Chief Petty Officer	Command Senior Chief Petty Officer	Command Chief Petty Officer	Command Senior Chief Petty Officer	Command Chief Petty Officer	Command Chief Petty Officer
								
U.S. Navy Police (officer)	U.S. Navy Police (enlisted)	U.S. Navy Security	U.S. Navy Corrections	U.S. Navy Guard	U.S. Navy Guard	U.S. Navy Guard	U.S. Navy Guard	U.S. Navy Master-at-Arms

U.S. Navy Police (officer) U.S. Navy Police (enlisted) U.S. Navy Security U.S. Navy Corrections U.S. Navy Guard U.S. Navy Guard U.S. Navy Guard U.S. Navy Master-at-Arms



# Enlisted Ratings



**AB**  
Aviation Boatswain's Mate  
ABE – Equipment  
ABF – Fuel  
ABH – Handling



**AM**  
Aviation Structural Mechanic  
AME – Equipment



**AW**  
Aviation Warfare  
Systems Operator



**CM**  
Construction Mechanic



**DT**  
Dental Technician



**EO**  
Equipment Operator



**GM**  
Gunner's Mate



**AC**  
Air Traffic Controller



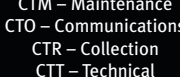
**AO**  
Aviation Ordnanceman



**AZ**  
Aviation Maintenance  
Administrationman



**CT**  
Cryptologic Technician  
CTA – Administration  
CTI – Interpretive  
CTM – Maintenance  
CTO – Communications  
CTR – Collection  
CTT – Technical



**EA**  
Engineering Aide



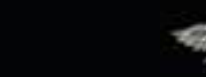
**ET**  
Electronics Technician



**GS**  
Gas Turbine System  
Technician  
GSE – Electrical  
GSM – Mechanical



**AD**  
Aviation Machinist's Mate



**AS**  
Aviation Support Equipment  
Technician



**BM**  
Boatswain's Mate



**DC**  
Damage Controlman



**DK**  
Disbursing Clerk



**EM**  
Electrician's Mate



**FC**  
Fire Controlman



**HM**  
Hospital Corpsman



**HT**  
Hull Maintenance  
Technician



**IC**  
Interior Communications  
Electrician



**AE**  
Aviation Electrician's Mate



**AG**  
Aerographer's Mate



**CE**  
Construction Electrician



**DM**  
Illustrator/Draftsman



**EN**  
Engineman



**FT**  
Fire Control Technician



**MA**  
Master-at-Arms



**MM**  
Machinist's Mate



**MN**  
Mineman



**MR**  
Machinery Repairman



**MS**  
Mess Management Specialist



**IS**  
Intelligence Specialist



**IT**  
Information Systems  
Technician



**JO**  
Journalist



**LI**  
Lithographer



**LN**  
Legalman



**MT**  
Missile Technician



**MU**  
Musician



**NC**  
Navy Counselor



**OS**  
Operations Specialist



**PC**  
Postal Clerk



**PH**  
Photographer's Mate



**PN**  
Personnelman



**PR**  
Aircrew Survival  
Equipmentman



**QM**  
Quartermaster



**RP**  
Religious Program Specialist



**SH**  
Ship's Serviceman



**SK**  
Storekeeper



**ST**  
Sonar Technician  
STG – Surface  
STS – Submarine

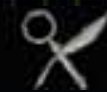


**SW**  
Steelworker



**TM**  
Torpedoman's Mate

# U.S. NAVY Owner's & Operator's AllHANDS' Manual 2004



**IS**  
Intelligence Specialist



**IT**  
Information Systems  
Technician



**JO**  
Journalist



**LI**  
Lithographer



**LN**  
Legalman



**MA**  
Master-at-Arms



**MM**  
Machinist's Mate



**MN**  
Mineman



**MR**  
Machinery Repairman



**MS**  
Mess Management Specialist



**MT**  
Missile Technician



**MU**  
Musician



**NC**  
Navy Counselor



**OS**  
Operations Specialist



**PC**  
Postal Clerk



**PH**  
Photographer's Mate



**PN**  
Personnelman



**PR**  
Aircrew Survival  
Equipmentman



**QM**  
Quartermaster



**RP**  
Religious Program Specialist



**SH**  
Ship's Serviceman



**SK**  
Storekeeper



**ST**  
Sonar Technician  
STG – Surface  
STS – Submarine



**SW**  
Steelworker



**TM**  
Torpedoman's Mate

Enlisted Sailors wear their job specialty in plain sight. Rating badges, worn on the left sleeve, consist of an eagle (called a "crow") chevrons indicating the wearer's rank and a specialty mark indicating rating. While some of these ratings have historical significance (such as Boatswain's Mate), others show the evolution of naval technology in modern times, such as the GS (Gas Turbine System Technicians). Source: [www.staynavy.navy.mil](http://www.staynavy.navy.mil)



USS Vincennes (CG 49)

Photo by USMC Pfc. Thomas D. Hudzinski



## CRUISERS

Modern U.S. Navy guided-missile cruisers perform primarily in a battle force role. These ships are multi-mission [air warfare (AW), undersea warfare (UW) and surface warfare (SW)] surface combatants capable of supporting carrier strike groups or amphibious forces, or of operating independently and as flagships of surface action groups.

### Ticonderoga-class

**Power Plant:** 4 General Electric LM 2500 gas turbine engines; 2 shafts, 80,000 shaft horsepower total.  
**Length:** 567 feet  
**Beam:** 55 feet  
**Displacement:** 9,600 tons  
**Speed:** 30 plus knots (34.5+ mph)  
**Aircraft:** Two SH-2 *Seasprite* (LAMPS) in CG 47-48; Two SH-60 *Sea Hawk* (LAMPS III)  
**Crew:** 24 Officers, 340 Enlisted  
**Armament:** MK-26 missile launcher (CG 47 thru CG 51); *Standard* Missile (MR) or MK-41 vertical launching system (CG 52 thru CG 73); *Standard* Missile (MR); Vertical Launch ASROC (VLA) Missile; *Tomahawk* Cruise Missile; Six MK-46 torpedoes (from two triple mounts); Two MK-45 5-inch/54 caliber light-weight guns; Two *Phalanx* close-in-weapons systems.

### Ships:

USS *Ticonderoga* (CG 47)  
 USS *Yorktown* (CG 48)  
 USS *Vincennes* (CG 49)  
 USS *Valley Forge* (CG 50)  
 USS *Thomas S. Gates* (CG 51)  
 USS *Bunker Hill* (CG 52)  
 USS *Mobile Bay* (CG 53)  
 USS *Antietam* (CG 54)  
 USS *Leyte Gulf* (CG 55)  
 USS *San Jacinto* (CG 56)  
 USS *Lake Champlain* (CG 57)  
 USS *Philippine Sea* (CG 58)  
 USS *Princeton* (CG 59)

USS *Normandy* (CG 60)  
 USS *Monterey* (CG 61)  
 USS *Chancellorsville* (CG 62)  
 USS *Cowpens* (CG 63)  
 USS *Gettysburg* (CG 64)  
 USS *Chosin* (CG 65)  
 USS *Hue City* (CG 66)  
 USS *Shiloh* (CG 67)  
 USS *Anzio* (CG 68)  
 USS *Vicksburg* (CG 69)  
 USS *Lake Erie* (CG 70)  
 USS *Cape St. George* (CG 71)  
 USS *Vella Gulf* (CG 72)  
 USS *Port Royal* (CG 73)

## AMPHIBIOUS ASSAULT

Modern U.S. Navy amphibious assault ships are called upon to perform as primary landing ships for assault operations of Marine expeditionary units. These ships use Landing Craft Air Cushion (LCAC), conventional landing craft and helicopters to move Marine assault forces ashore. In a secondary role, using AV-8B *Harrier* aircraft and anti-submarine warfare helicopters, these ships perform sea control and limited power projection missions.

### Tarawa-class

**Power Plant:** Two boilers, two geared steam turbines, two shafts, 70,000 total shaft horsepower  
**Length:** 820 feet  
**Beam:** 106 feet  
**Displacement:** 39,400 tons full load  
**Speed:** 24 knots (27.6 mph)  
**Aircraft, depending on mission:** 12

CH-46 *Sea Knight* helicopters; four CH-53E *Super Stallion* helicopters; six AV-8B *Harrier* attack aircraft; three UH-1N *Huey* helicopters; four AH-1W *Super Cobra* helicopters  
**Crew:** 82 officers, 882 enlisted,  
**Marine Detachment:** 1,900 plus  
**Armament:** Two RAM launchers; two *Phalanx* 20 mm CIWS mounts; three .50 cal. machine guns; four 25 mm Mk-38 machine guns.

### Ships:

USS *Tarawa* (LHA 1)  
 USS *Saipan* (LHA 2)  
 USS *Belleau Wood* (LHA 3)  
 USS *Nassau* (LHA 4)  
 USS *Peleliu* (LHA 5)

### Wasp-class

**Power Plant:** Two boilers, two geared steam turbines, two shafts, 70,000 shaft horsepower; LHD 8 – two gas turbines, 70,000 shaft horsepower, two auxiliary propulsion motors (5,000 hp each).  
**Length:** 844 feet  
**Beam:** 106 feet  
**Displacement:** LHDs 1-4: 40,650 tons full load; LHDs 5-7: 40,358 tons full load; LHD 8: 41,772 tons full load  
**Speed:** 20+ knots (23.5+ miles per hour)  
**Aircraft, depending on mission:** 12 CH-46 *Sea Knight* helicopters; 4 CH-53E *Super Stallion* helicopters; 6 AV-8B *Harrier* attack aircraft; 3 UH-1N *Huey* helicopters; 4 AH-1W *Super Cobra* helicopters

# U.S. NAVY Owner's & Operator's AllHANDS Manual 2004

**Crew:** 104 officers, 1,004 enlisted;  
**Marine Detachment:** 1,894  
**Armament:** Two RAM launchers; two NATO *Sea Sparrow* launchers; three 20mm *Phalanx* CIWS mounts (two on LHD 5-7); four .50 cal. machine guns; four 25mm MK-38 machine guns (LHD 5-7 have three 25 mm MK-38 machine guns).

### Ships:

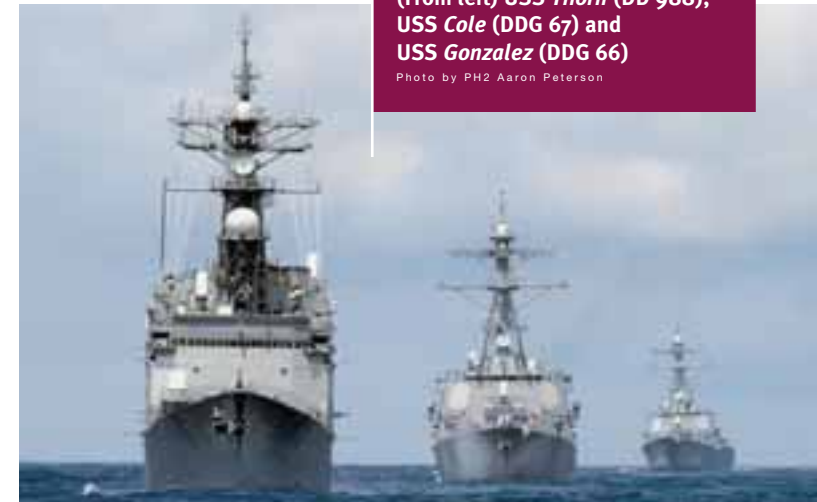
USS *Wasp* (LHD 1)  
 USS *Essex* (LHD 2)  
 USS *Kearsarge* (LHD 3)  
 USS *Boxer* (LHD 4)  
 USS *Bataan* (LHD 5)  
 USS *Bon Homme Richard* (LHD 6)  
 USS *Iwo Jima* (LHD 7)  
 USS *Makin Island* (LHD 8)\*

## DESTROYERS

Destroyers can conduct a variety of operations, from peacetime presence and crisis management to sea control and power projection, in support of the National Military Strategy. These ships are capable of fighting air, surface and subsurface battles simultaneously. The ships contain myriad offensive and defensive weapons designed to support maritime defense needs well into the 21st century.

### Spruance-class

**Power plant:** Four General Electric LM 2500 gas turbines, two shafts, 80,000 shaft horsepower  
**Length:** 563 feet  
**Beam:** 55 feet  
**Displacement:** 8,040 tons full load  
**Speed:** In excess of 30 knots (34.5+ mph)  
**Aircraft:** Two SH-60 *Seahawk* LAMPS III helicopters  
**Crew:** 30 officers, 352 enlisted  
**Armament:** eight *Harpoon* (from two quad launchers), *Tomahawk*, VLS or ABL; Vertical Launch ASROC (VLA) missiles; six MK-46 torpedoes (from 2 triple tube mounts); two 5 inch/54 caliber MK-45 (lightweight



(From left) USS *Thorn* (DD 988),  
 USS *Cole* (DDG 67) and  
 USS *Gonzalez* (DDG 66)

Photo by PH2 Aaron Peterson

gun); two 20mm *Phalanx* CIWS. *Kidd*-class only: *Standard* missiles; NATO *Sea Sparrow* point defense AAW missiles.

### Ships:

USS *Spruance* (DD 963)  
 USS *O'Brien* (DD 975)  
 USS *Stump* (DD 978)  
 USS *Cushing* (DD 985)  
 USS *O'Bannon* (DD 987)  
 USS *Thorn* (DD 988)  
 USS *Fletcher* (DD 992)

### Arleigh Burke-class

**Power Plant:** Four General Electric LM 2500-30 gas turbines; two shafts, 100,000 total shaft horsepower. SPY-1 Radar and Combat System Integrator; Lockheed Martin  
**Length:** Flights I and II (DDG 51-78): 505 feet; Flight IIA (DDG 79-98): 509 feet  
**Beam:** 59 feet  
**Displacement:** Hulls 51 through 71: 8,315 tons full load; Hulls 72 through 78: 8,400 tons full load; Hulls 79 and on: 9,200 tons full load  
**Speed:** In excess of 30 knots (34.5+ mph)  
**Aircraft:** None. LAMPS III electronics installed on landing deck for coordinated DDG 51/helo ASW operations, two SH-60 on DDG 79+

**Crew:** 23 officers, 300 enlisted  
**Armament:** *Standard* missile; *Harpoon*; Vertical Launch ASROC (VLA) missiles; *Tomahawk*; six MK-46 torpedoes (from two triple tube mounts); one 5 inch/54 caliber MK-45 (lightweight gun); two 20mm *Phalanx* CIWS.

### Ships:

USS *Arleigh Burke* (DDG 51)  
 USS *Barry* (DDG 52)  
 USS *John Paul Jones* (DDG 53)  
 USS *Curtis Wilbur* (DDG 54)  
 USS *Stout* (DDG 55)  
 USS *John S. McCain* (DDG 56)  
 USS *Mitscher* (DDG 57)  
 USS *Laboon* (DDG 58)  
 USS *Russell* (DDG 59)  
 USS *Paul Hamilton* (DDG 60)  
 USS *Ramage* (DDG 61)  
 USS *Fitzgerald* (DDG 62)  
 USS *Stethem* (DDG 63)  
 USS *Carney* (DDG 64)  
 USS *Benfold* (DDG 65)  
 USS *Gonzalez* (DDG 66)  
 USS *Cole* (DDG 67)  
 USS *The Sullivans* (DDG 68)  
 USS *Milius* (DDG 69)  
 USS *Hopper* (DDG 70)  
 USS *Ross* (DDG 71)  
 USS *Mahan* (DDG 72)  
 USS *Decatur* (DDG 73)  
 USS *McFaul* (DDG 74)

\* under construction



# Ships

USS De Wert (FFG 45)

Photo by Paul Farley



USS Donald Cook (DDG 75)  
 USS Higgins (DDG 76)  
 USS O'Kane (DDG 77)  
 USS Porter (DDG 78)  
 USS Oscar Austin (DDG 79)  
 USS Roosevelt (DDG 80)  
 USS Winston S. Churchill (DDG 81)  
 USS Lassen (DDG 82)  
 USS Howard (DDG 83)  
 USS Bulkeley (DDG 84)  
 USS McCampbell (DDG 85)  
 USS Shoup (DDG 86)  
 USS Mason (DDG 87)  
 USS Preble (DDG 88)  
 USS Mustin (DDG 89)  
 USS Chafee (DDG 90)  
 Pinckney (DDG 91)\*  
 Momsen (DDG 92)\*  
 Chung-Hoon (DDG 93)\*  
 Nitze (DDG 94)\*  
 James E. Williams (DDG 95)\*

## FRIGATES

Perry-class frigates are primarily Undersea Warfare ships intended to provide open-ocean escort of amphibious ships and convoys in low to moderate-threat environments. They can also provide limited defense against anti-ship missiles. In addition,

they can conduct independent operations for such missions as counter-drug surveillance, maritime interdiction operations and exercises with other nations.

The FFG-7 class is a robust platform, capable of withstanding considerable damage. This "toughness" was aptly demonstrated in the late 1980s when USS Samuel B. Roberts (FFG 58) struck a mine and USS Stark (FFG 31) was hit by two Exocet cruise missiles. In both cases the ships survived, were repaired and returned to the fleet.

### Oliver Hazard Perry-class

**Power Plant:** Two General Electric LM 2500 gas turbine engines; 1 shaft, 41,000 shaft horsepower total.

**Length:** 445 feet; 453 feet with LAMPS III modification.

**Beam:** 45 feet

**Displacement:** 4,100 tons full load

**Speed:** 29 plus knots (33.4+ mph)

**Aircraft:** Two SH-60 (LAMPS III) in FFG 8, 28, 29, 32, 33, 36-61;

One SH-2 (Lamps MK-I) in FFG 9-19, 30, 31.

**Crew:** 17 Officers, 198 Enlisted

**Armament:** Standard Missile (MR); Harpoon (from Standard Missile Launcher); six MK-46 torpedoes (from two triple mounts); one 76 mm (3-inch)/62-caliber MK-75 rapid fire gun; one Phalanx close-in-weapons system.

### Ships:

USS McInerney (FFG 8)  
 USS Boone (FFG 28)\*\*  
 USS Stephen W. Groves (FFG 29)\*\*  
 USS John L. Hall (FFG 32)  
 USS Jarrett (FFG 33)  
 USS Underwood (FFG 36)  
 USS Crommelin (FFG 37)  
 USS Curts (FFG 38)\*\*  
 USS Doyle (FFG 39)\*\*  
 USS Halyburton (FFG 40)  
 USS McClusky (FFG 41)\*\*  
 USS Klakring (FFG 42)\*\*  
 USS Thach (FFG 43)  
 USS DeWert (FFG 45)  
 USS Rentz (FFG 46)  
 USS Nicholas (FFG 47)  
 USS Vandegrift (FFG 48)  
 USS Robert G. Bradley (FFG 49)  
 USS Taylor (FFG 50)  
 USS Gary (FFG 51)

USS Sides (FFG 14),

Photo by PHAN Andrew Betting



# U.S. NAVY Owner's & Operator's AllHANDS Manual 2004

USS Carr (FFG 52)  
 USS Hawes (FFG 53)  
 USS Ford (FFG 54)  
 USS Elrod (FFG 55)  
 USS Simpson (FFG 56)\*\*  
 USS Reuben James (FFG 57)  
 USS Samuel B. Roberts (FFG 58)  
 USS Kauffman (FFG 59)  
 USS Rodney M. Davis (FFG 60)\*\*  
 USS Ingraham (FFG 61)

## AMPHIBIOUS TRANSPORT DOCK

The amphibious transports are used to transport and land Marines, their equipment and supplies by embarked air cushion or conventional landing craft or amphibious vehicles, augmented by helicopters or vertical take off and landing aircraft in amphibious assault, special operations, or expeditionary warfare missions.

### Austin-class

**Power plant:** Two boilers, two steam turbines, two shafts, 24,000 shaft horsepower

**Length:** 570 feet

**Beam:** 84 feet

**Displacement:** Approximately 17,000 tons

**Speed:** 21 knots (24.2 mph)

**Aircraft:** Up to six CH-46 Sea Knight helicopters

**Crew:** 420 (24 officers, 396 enlisted)

**Marine Detachment:** 900

**Armament:** Two 25mm MK-38 guns; two Phalanx CIWS; and eight .50-caliber machine guns.

### Ships:

USS Austin (LPD 4)  
 USS Ogden (LPD 5)  
 USS Duluth (LPD 6)  
 USS Cleveland (LPD 7)  
 USS Dubuque (LPD 8)  
 USS Denver (LPD 9)  
 USS Juneau (LPD 10)  
 USS Shreveport (LPD 12)  
 USS Nashville (LPD 13)

USS Trenton (LPD 14)  
 USS Ponce (LPD 15)

### San Antonio-class

**Power plant:** Four sequentially turbocharged marine Colt-Pielstick Diesels, two shafts, 41,600 shaft horsepower

**Length:** 684 feet

**Beam:** 105 feet

**Displacement:** Approximately 24,900 tons full load

**Speed:** In excess of 22 knots (24.2 mph)

**Aircraft:** Launch or land two CH-53E Super Stallion helicopters or up to four CH-46 Sea Knight helicopters, MV-22 Osprey tilt rotor aircraft, AH-1 or UH-1 helicopters

**Armament:** Two Bushmaster II 30 mm Close in Guns, fore and aft;

two Rolling Airframe Missile launchers, fore and aft.

### Landing Craft/Assault Vehicles:

Two LCACs or one LCU; and 14 Advanced Amphibious Assault Vehicles.

**Crew:** 28 officers, 333 enlisted; embarked landing force: 66 officers, 633 enlisted; surge capacity to 800.

### Ships:

San Antonio (LPD 17)\*  
 New Orleans (LPD 18)\*  
 Mesa Verde (LPD 19)\*  
 Green Bay (LPD 20)\*  
 New York (LPD 201)\*

\* Under Construction

\*\* Naval Reserve Force, Active

USS Dubuque (LPD 8) clears the Coronado Bridge with the assistance of a tugboat.

Photo by PH2(AW) Angela D. Gonzalez





**USS La Salle (AGF 3)**  
Photo by PH2 Todd Reeves



## AMPHIBIOUS DOCK LANDING SHIPS

Dock Landing Ships support amphibious operations including landings via Landing Craft Air Cushion (LCAC), conventional landing craft and helicopters, onto hostile shores.

### Whidbey Island-class

**Power Plant:** Four Colt Industries, 16 cylinder diesels, two shafts, 33,000 shaft horsepower  
**Length:** 609 feet  
**Beam:** 84 feet  
**Displacement:** 15,939 tons  
**Speed:** 20+ knots (23.5+ mph)  
**Landing Craft:** Four Landing Craft, Air Cushion  
**Crew:** 22 officers, 391 enlisted  
**Marine Detachment:** 402 plus 102 surge  
**Armament:** Two 25mm MK-38 machine guns; Two 20mm *Phalanx* CIWS mounts and six .50 caliber machine guns.

**Ships:**  
USS *Whidbey Island* (LSD 41)  
USS *Germantown* (LSD 42)

USS *Fort McHenry* (LSD 43)  
USS *Gunston Hall* (LSD 44)  
USS *Comstock* (LSD 45)  
USS *Tortuga* (LSD 46)  
USS *Rushmore* (LSD 47)  
USS *Ashland* (LSD 48)

**Marine Detachment:** 402 plus 102 surge  
**Armament:** Two 25mm MK-38 machine guns, Two 20mm *Phalanx* CIWS mounts and six .50 caliber machine guns.

**Ships:**  
USS *Harpers Ferry* (LSD 49)  
USS *Carter Hall* (LSD 50)  
USS *Oak Hill* (LSD 51)  
USS *Pearl Harbor* (LSD 52)

### Harpers Ferry-class

**Power Plant:** Four Colt Industries, 16 Cylinder Diesels, two shafts, 33,000 shaft horsepower  
**Length:** 609 feet  
**Beam:** 84 feet  
**Displacement:** 16,708 tons full load  
**Speed:** 20+ knots (23.5+ mph)  
**Landing Craft:** Two Landing Craft, Air Cushion  
**Crew:** 22 officers, 397 enlisted;

## AMPHIBIOUS COMMAND SHIPS

Amphibious Command Ships provide command and control for fleet commanders. These are the only ships to be designed initially for an amphibious command ship role. Earlier amphibious command ships lacked sufficient speed to keep up with a 20-knot amphibious force. Subsequently, both ships became fleet flagships. USS *Blue Ridge* (LCC 19) became the 7th Fleet command ship in 1979, and USS *Mount Whitney* (LCC 20) became the 2nd Fleet command ship in 1981.

### Blue Ridge-class

**Power Plant:** Two boilers, one geared turbine, one shaft; 22,000 horsepower  
**Length overall:** 634 feet  
**Beam extreme:** 108 feet  
**Displacement:** 18,874 tons  
**Speed:** 23 knots (26.5 miles)

**USS Peleliu (LHA 5)**  
Photo by PH1 William Goodwin



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**Aircraft:** All helicopters except the CH-53 *Super Stallion* can be carried  
**Crew:** 52 officers, 790 enlisted.

**Ships:**  
USS *Blue Ridge* (LCC 19)  
USS *Mount Whitney* (LCC 20)

### LaSalle-class

**Power Plant:** Two boilers, geared turbines, two shafts, 24,000 shaft horsepower  
**Length:** 520 feet  
**Beam:** 84 feet  
**Displacement:** 14,650 tons  
**Speed:** 20 knots  
**Aircraft:** One light helicopter  
**Crew:** 440 ship's company + 59 flag staff  
**Armament:** Two *Phalanx* close-in weapons system, four machine gun mounts, two saluting guns.  
**Ships:**  
USS *LaSalle* (AGF 3)

## MINE WARFARE SHIPS

*Avenger*-class ships are designed as mine hunter-killers capable of finding, classifying and destroying moored and bottom mines. The last three MCM ships were purchased in 1990, bringing the total to 14 fully-deployable, oceangoing *Avenger*-class ships. These ships use sonar and video systems, cable cutters and a mine detonating device that can be released and detonated by remote control. They are also capable of conventional sweeping measures. *Avenger* has a 15-day endurance and depends on a support ship or shore based facilities for resupply.

### Avenger-class

**Power Plant:** Four diesels (600 horsepower each), two shafts with controllable-pitch propellers  
**Length:** 224 feet  
**Beam:** 39 feet  
**Displacement:** 1,312 tons full load  
**Speed:** 14 knots (16.1 mph)

**Crew:** 8 officers, 76 enlisted  
**Armament:** Mine neutralization system. Two .50 caliber machine guns.  
**Ships:**  
USS *Avenger* (MCM 1)\*\*  
USS *Defender* (MCM 2)\*\*  
USS *Sentry* (MCM 3)\*\*  
USS *Champion* (MCM 4)\*\*  
USS *Guardian* (MCM 5)  
USS *Devastator* (MCM 6)  
USS *Patriot* (MCM 7)  
USS *Scout* (MCM 8)  
USS *Pioneer* (MCM 9)  
USS *Warrior* (MCM 10)  
USS *Gladiator* (MCM 11)\*\*  
USS *Ardent* (MCM 12)  
USS *Dextrous* (MCM 13)  
USS *Chief* (MCM 14)

### Osprey-class

*Osprey*-class (MHC 51) ships are mine hunter-killers capable of finding, classifying and destroying moored and bottom mines. The MHC 51 has a 15-day endurance and depends on a support ship or shore based facilities for resupply. These ships use sonar and video systems, cable cutters and a mine detonating device that can be released and detonated by remote control. They are also capable of conventional sweeping measures.

**Power Plant:** Two diesels (800 hp each); two Voith-Schneider (cycloidal) propulsion systems  
**Length:** 188 feet (57.3 meters)  
**Beam:** 36 feet (11 meters)  
**Displacement:** 893 tons full load  
**Speed:** 10 knots (18.4 kmph)  
**Crew:** 5 officers, 46 enlisted  
**Armament:** Two .50-caliber machine guns, Mine Neutralization System and other mine-countermeasure systems.  
**Ships:**  
USS *Osprey* (MHC 51)\*\*  
USS *Heron* (MHC 52)\*\*  
USS *Pelican* (MHC 53)\*\*  
USS *Robin* (MHC 54)\*\*  
USS *Oriole* (MHC 55)\*\*  
USS *Kingfisher* (MHC 56)\*\*  
USS *Cormorant* (MHC 57)\*\*  
USS *Black Hawk* (MHC 58)\*\*

USS *Falcon* (MHC 59)\*\*  
USS *Cardinal* (MHC 60)  
USS *Raven* (MHC 61)  
USS *Shrike* (MHC 62)\*\*

\*\* Naval Reserve Force, Active

USS *Dextrous* (MCM 13) takes part in mine counter measure operations in the Arabian Gulf along with coalition forces.

PH1 Brian Aho





Effective January 1, 2004

Pay Chart Monthly Basic Pay Table

Pay Grade		Years of Service											
		<2	2	3	4	6	8	10	12	14	16	18	20
Enlisted Members*													
E-9**	0	0	0	0	0	0	0	0	0	0	0	0	0
E-8	0	0	0	0	0	0	3085.50	3222.00	3306.30	3407.70	3517.50	3715.50	3815.70
E-7	2145.00	2341.20	2430.60	2549.70	2621.00	2700.00	2814.40	2891.10	2980.20	3139.80	3219.60	3299.50	3341.70
E-6	1855.50	2041.20	2131.20	2218.80	2310.00	2396.20	2516.10	2596.20	2685.30	2790.90	2809.80	2809.80	2809.80
E-5	1700.10	1813.50	1901.10	1991.10	2130.60	2250.90	2250.90	2339.70	2367.90	2367.90	2367.90	2367.90	2367.90
E-4	1558.20	1638.30	1726.80	1814.10	1891.50	1891.50	1891.50	1891.50	1891.50	1891.50	1891.50	1891.50	1891.50
E-3	1407.00	1495.50	1585.50	1585.50	1585.50	1585.50	1585.50	1585.50	1585.50	1585.50	1585.50	1585.50	1585.50
E-2	1331.40	1331.40	1331.40	1331.40	1331.40	1331.40	1331.40	1331.40	1331.40	1331.40	1331.40	1331.40	1331.40
E-1	1173.90	1173.90	1173.90	1173.90	1173.90	1173.90	1173.90	1173.90	1173.90	1173.90	1173.90	1173.90	1173.90
E-1 > 4	1086.00	0	0	0	0	0	0	0	0	0	0	0	0

Warrant Officer

W-5	0	0	0	0	0	0	0	0	0	0	0	0	0
W-4	1119.40	3355.80	3452.40	3547.20	3710.40	3871.50	4035.00	4194.30	4359.00	4519.30	4782.60	5112.00	5241.30
W-3	2848.80	2967.90	3089.40	3129.30	3257.10	3403.20	3595.80	3786.30	3988.80	4140.60	4291.80	4570.20	4716.30
W-2	2502.90	2649.00	2774.10	2865.30	2943.30	3157.80	3321.60	3443.40	3562.20	3643.80	3712.50	3972.60	4103.70
W-1	2212.80	2394.00	2515.20	2593.50	2802.30	2928.30	3039.90	3164.70	3247.20	3321.90	3443.70	3535.80	3535.80

Commissioned Officers With More Than Four (4) Years Active-duty Service as an Enlisted Member or Warrant Officer\*

O-6	0	0	0	0	0	0	0	0	0	0	0	0	0
O-5	0	0	0	0	0	0	0	0	0	0	0	0	0
O-4	0	0	0	0	0	0	0	0	0	0	0	0	0
O-3	0	0	0	0	0	0	0	0	0	0	0	0	0
O-2	0	0	0	0	0	0	0	0	0	0	0	0	0
O-1	0	0	0	0	0	0	0	0	0	0	0	0	0

Commissioned Officers\*

O-10	0	0	0	0	0	0	0	0	0	0	0	0	0
O-9	0	0	0	0	0	0	0	0	0	0	0	0	0
O-8	7715.17	06700.08	1473.20	2220.60	3030.48	3818.90	4582.10	5369.88	6166.16	6992.80	7839.66	8695.70	9547.50
O-7	4074.70	3939.80	478.40	888.50	1287.40	1784.20	2350.00	2985.19	3682.10	4396.70	5129.80	5936.10	6733.50
O-6	4773.60	4430.55	558.40	888.50	1287.40	1784.20	2350.00	2985.19	3682.10	4396.70	5129.80	5936.10	6733.50
O-5	3979.50	4482.90	4793.40	4299.00	4545.30	4809.30	5161.20	5415.90	5692.80	5944.00	6213.60	6489.70	6760.80
O-4	3433.50	3974.70	4239.90	4299.00	4545.30	4809.30	5161.20	5415.90	5692.80	5944.00	6213.60	6489.70	6760.80
O-3	4773.60	4430.55	558.40	888.50	1287.40	1784.20	2350.00	2985.19	3682.10	4396.70	5129.80	5936.10	6733.50
O-2	3595.52	3952.50	4050.00	3513.90	3592.50	3592.50	3592.50	3592.50	3592.50	3592.50	3592.50	3592.50	3592.50
O-1	2253.09	2534.10	2834.70	2834.70	2834.70	2834.70	2834.70	2834.70	2834.70	2834.70	2834.70	2834.70	2834.70

\* Notwithstanding the basic pay rates specified in this table, the actual rate of basic pay for enlisted members may not exceed the rate of pay for Level 5 of the Executive Schedule.

\*\* Subject to the preceding footnote, the rate of basic pay for an enlisted member in the pay grade of E-9, who is serving as Master Chief Petty Officer of the Navy is \$6,090.90, regardless of cumulative years of service computed under Section 205 of Title 37, U. S. Code.

\*\*\* In the case of members in the pay grade E-1, who have served less than four months on active duty, the rate of basic pay is \$1,086.00.

Source: OSD/OSD (N) and HR 1588 III








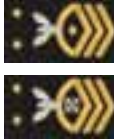










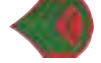



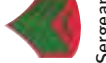













Order of Precedence





















The following display represents the correct order of precedence for medals and/or ribbons most likely to be worn today on the Navy uniform. Additional information on the proper display, placement or additional devices is found in SECNAVINST 1650.1G and the U.S. Navy Uniform Regulations (NAVPERS 155651).

Medal of Honor	Navy Cross	Defense Distinguished Service Medal	Distinguished Service Medal	Silver Star	Defense Superior Service Medal	Legion of Merit
Distinguished Flying Cross	Navy/Marine Corps Medal	Bronze Star	Purple Heart	Defense Meritorious Service Medal	Meritorious Service Medal	Air Medal
Joint Service Commendation Medal	Navy/Marine Corps Commendation Medal	Joint Service Achievement Medal	Navy/Marine Corps Achievement Medal	Combat Action Ribbon	Presidential Unit Citation	Joint Meritorious Unit Award
Navy Unit Commendation	Meritorious Unit Commendation	Navy "E" Ribbon	POW Medal	Good Conduct Medal	Naval Reserve Meritorious Service Medal	Fleet Marine Force Ribbon
Navy Expeditionary Medal	National Defense Service Medal	Korean Service Medal	Antarctic Service Medal	Armed Forces Expeditionary Medal	Vietnam Service Medal	Southwest Asia Service Medal
Kosovo Campaign Medal	Global War on Terrorism Service Medal *	Global War on Terrorism Expeditionary Medal *	Armed Forces Service Medal	Humanitarian Service Medal	Military Outstanding Volunteer Service Medal	Sea Service Deployment Ribbon
Navy Arctic Service Ribbon	Naval Reserve Sea Service Ribbon	Navy/Marine Corps Overseas Service Ribbon	Navy Recruiting Service Ribbon	Navy Recruit Training Service Medal	Armed Forces Reserve Medal	Naval Reserve Medal



U.S. Armed Forces  
**Ranks**

Air Force		Army		Marine Corps		Navy & Coast Guard	
E-9	<div></div> <div>Chief Master Sergeant of the Air Force</div> <div></div> <div>Chief Master Sergeant, First Sergeant, Command Chief Master Sergeant</div>	<div></div> <div>Sergeant Major of the Army</div> <div></div> <div>Sergeant Major, Command Sergeant Major</div>	<div></div> <div>Sergeant Major of the Marine Corps</div> <div></div> <div>Sergeant Major, Master Gunnery Sergeant</div>	<div></div> <div>Master Chief Petty Officer of the Navy / Coast Guard</div> <div></div> <div>Master Chief Petty Officer, Fleet/Force/Command Master Chief Petty Officer</div>			
E-8	<div></div> <div>Senior Master Sergeant, First Sergeant</div>	<div></div> <div>Master Sergeant, First Sergeant</div>	<div></div> <div>First Sergeant, Master Sergeant</div>	<div></div> <div>Senior Chief Petty Officer</div>			
E-7	<div></div> <div>Master Sergeant, First Sergeant</div>	<div></div> <div>Sergeant First Class</div>	<div></div> <div>Gunnery Sergeant</div>	<div></div> <div>Chief Petty Officer</div>			
E-6	<div></div> <div>Technical Sergeant</div>	<div></div> <div>Staff Sergeant</div>	<div></div> <div>Staff Sergeant</div>	<div></div> <div>Petty Officer First Class</div>			
E-5	<div></div> <div>Staff Sergeant</div>	<div></div> <div>Sergeant</div>	<div></div> <div>Sergeant</div>	<div></div> <div>Petty Officer Second Class</div>			
E-4	<div></div> <div>Senior Airman</div>	<div></div> <div>Corporal, Specialist</div>	<div></div> <div>Corporal</div>	<div></div> <div>Petty Officer Third Class</div>			
E-3	<div></div> <div>Airman First Class</div>	<div></div> <div>Private First Class</div>	<div></div> <div>Lance Corporal</div>	<div></div> <div>Seaman</div>			
E-2	<div></div> <div>Airman</div>	<div></div> <div>Private</div>	<div></div> <div>Private First Class</div>	<div></div> <div>Seaman Apprentice</div>			
E-1	Airman Basic	Private	Private	Seaman Recruit			
Air Force		Army		Marine Corps		Navy & Coast Guard	

Warrant Officers				
No Warrant				
No Warrant	Warrant Officer 1	Warrant Officer 1	Warrant Officer 1	Warrant Officer 1 (Coast Guard only)
No Warrant				
No Warrant	Chief Warrant Officer 2	Chief Warrant Officer 2	Chief Warrant Officer 2	Chief Warrant Officer 2
No Warrant				
No Warrant	Chief Warrant Officer 3	Chief Warrant Officer 3	Chief Warrant Officer 3	Chief Warrant Officer 3
No Warrant				
No Warrant	Chief Warrant Officer 4	Chief Warrant Officer 4	Chief Warrant Officer 4	Chief Warrant Officer 4
No Warrant				
No Warrant	Chief Warrant Officer 5	Chief Warrant Officer 5	Chief Warrant Officer 5	Chief Warrant Officer 5

Devices shown are the same for all services.

Air Force • Army • Marines  
Officer Ranks

Navy • Coast Guard  
Officer Ranks

General of the  
Air Force /Army  
(Reserved for Wartime)

Fleet Admiral  
(Reserved for Wartime)

General

Admiral / Commandant  
of the Coast Guard

Lieutenant General

Vice Admiral

Major General

Rear Admiral  
(Upper Half)

Brigadier General

Rear Admiral  
(Lower Half)

Colonel

Captain

Lieutenant Colonel

Commander

Major

Lieutenant Commander

Captain

Lieutenant

First Lieutenant

Lieutenant  
Junior Grade

Second Lieutenant

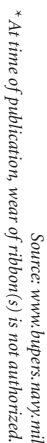
Ensign



The mission of the Naval Reserve is to provide mission-capable units and individuals to the Navy/Marine Corps team throughout the full range of operations from peace to war.



**ALL HANDS • [www.news.navy.mil](http://www.news.navy.mil)**





USS *Chinook* (PC 9) patrols the waters of the Arabian Gulf during the early hours of Operation Iraqi Freedom.

Photo by William F. Gowdy



## PATROL BOATS

The primary mission of these ships is coastal patrol and interdiction surveillance, an important aspect of littoral operations. The *Cyclone*-class PCs are particularly suited for the maritime homeland security mission and have been employed jointly with the U.S. Coast Guard to help protect our nation's coastline, ports and waterways from terrorist attack.

### *Cyclone*-class

**Power Plant:** Four Paxman diesels; four shafts; 3,350 shaft horsepower  
**Length:** 170 feet  
**Beam:** 25 feet  
**Displacement:** 331 tons full load  
**Speed:** 35 knots (40 mph)  
**Crew:** Four officers, 24 enlisted  
**Armament:** One MK 96 and one MK 38 25mm machine gun; Five .50-caliber machine guns; two MK 19 40mm automatic grenade launchers; Two M-60 machine guns.  
**Ships:**  
 USS *Tempest* (PC 2)  
 USS *Hurricane* (PC 3)  
 USS *Monsoon* (PC 4)

USS *Typhoon* (PC 5)  
 USS *Sirocco* (PC 6)  
 USS *Squall* (PC 7)  
 USS *Zephyr* (PC 8)  
 USS *Chinook* (PC 9)  
 USS *Firebolt* (PC 10)  
 USS *Whirlwind* (PC 11)  
 USS *Thunderbolt* (PC 12)  
 USS *Shamal* (PC 13)  
 USS *Tornado* (PC 14)

## AUXILIARY SHIPS

The fast combat support ship (AOE) is the Navy's largest combat logistics ship. The AOE has the speed and armament to keep up with the carrier strike groups. It rapidly replenishes Navy task forces and can carry more than 177,000 barrels of oil; 2,150 tons of ammunition; 500 tons of dry stores; and 250 tons of refrigerated stores. It receives petroleum products, ammunition and stores from shuttle ships and redistributes these items simultaneously to carrier strike group ships. This reduces the vulnerability of serviced ships by reducing alongside time. Congress appropriated the funds for the lead ship of the AOE 6-class in 1987. *Supply* and *Rainier* (AOE 7) were

transferred to Military Sealift Command and placed back in service as a "United States Naval Ship."

### *Sacramento*-class

**Power Plant:** Four boilers, geared turbines, two shafts, 100,000 shaft hp  
**Length:** 793 feet  
**Beam:** 107 feet  
**Displacement:** 53,000 tons full load  
**Speed:** 26 knots (30 miles)  
**Aircraft:** Two CH-46E *Sea Knight* helicopters  
**Crew:** 24 officers, 576 enlisted  
**Armament:** NATO *Sea Sparrow* missiles, two *Phalanx* close-in weapons systems.  
**Ships:**  
 USS *Sacramento* (AOE 1)  
 USS *Camden* (AOE 2)  
 USS *Seattle* (AOE 3)  
 USS *Detroit* (AOE 4)

### *Supply*-class

**Power Plant:** Four GE LM2500 gas-turbines; two shafts; 105,000 hp  
**Length:** 754 feet  
**Beam:** 107 feet  
**Displacement:** 48,800 tons full load  
**Speed:** 25 knots  
**Aircraft:** Three CH-46E helicopters

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**Crew:** 40 officers, 627 enlisted  
**Armament:** NATO *Sea Sparrow* missiles, two *Phalanx* close-in weapons systems, two 25mm machine guns.  
**Ships:**  
 USS *Bridge* (AOE 10)

## RESCUE & SALVAGE

Rescue and salvage ships render assistance to disabled ships, provide towing, salvage, diving, firefighting and heavy lift capabilities. They can debauch stranded vessels, provide heavy lift capability from ocean depths, tow other vessels and conduct manned diving operations. For rescue missions, these ships are equipped with fire monitors forward and amidships which can deliver either firefighting foam or sea water. The salvage holds of these ships are outfitted with portable equipment to provide assistance to other vessels in dewatering, patching, supply of electrical power and other essential service required to return a disabled ship to an operating condition.

### *Safeguard*-class

**Power Plant:** Four Caterpillar 399 diesels, two shafts, 4,200 horsepower  
**Length:** 255 feet  
**Beam:** 51 feet  
**Draft:** 16 feet 9 inches  
**Displacement:** 3,282 tons  
**Speed:** 14 knots (16.1 mph)  
**Endurance:** 8,000 miles at 8 knots  
**Salvage Capability:** 7.5-ton capacity boom forward; 40-ton capacity boom aft  
**Heavy Lift:** Capable of a hauling force of 150 tons  
**Diving Depth:** 190 feet using air  
**Crew:** Six officers, 94 enlisted  
**Armament:** Two .50 caliber machine guns; two MK-38 25mm guns.  
**Ships:**  
 USS *Safeguard* (ARS 50)  
 USS *Grasp* (ARS 51)

USS *Salvor* (ARS 52)  
 USS *Grapple* (ARS 53)

## SUBMARINE TENDERS

Submarine Tenders furnish maintenance and logistic support for nuclear attack submarines and are the largest of the active auxiliaries. Their crews are primarily technicians and repair personnel.

### *Emory S. Land*-class

**Power Plant:** Two boilers, geared turbines, one shaft, 20,000 shaft horsepower  
**Length:** 644 feet  
**Beam:** 85 feet  
**Displacement:** Approximately 23,493 tons full load  
**Speed:** 20 knots (23 mph)  
**Aircraft:** None  
**Crew:** 97 officers, 1,266 enlisted  
**Armament:** Two 40mm guns, and four 20mm guns

**Ships:**  
 USS *Emory S. Land* (AS 39)  
 USS *Frank Cable* (AS 40)

## Other Ships in Commission

*Constitution*  
 USS *Pueblo* (AGER 2)  
 Self Defense Test Ship (EDDG 31)

\*\* *Naval Reserve Force, Active*

Source: Navy Fact File

The fast combat support ship USS *Sacramento* (AOE 1) cruises ahead of USS *Carl Vinson* (CVN 70) preparing to begin an underway replenishment.

Photo by Matthew Todhunter





## NAVAL FLEET AUXILIARY FORCE (NFAF)

### Ammunition Ships T-AE

USNS *Kilauea* (T-AE 26)  
USNS *Santa Barbara* (T-AE 28)  
USNS *Flint* (T-AE 32)  
USNS *Shasta* (T-AE 33)  
USNS *Mount Baker* (T-AE 34)  
USNS *Kiska* (T-AE 35)

### Combat Stores Ships T-AFS

USNS *Niagara Falls* (T-AFS 3)  
USNS *Concord* (T-AFS 5)  
USNS *San Jose* (T-AFS 7)  
USNS *Sirius* (T-AFS 8)  
USNS *Spica* (T-AFS 9)  
USNS *Saturn* (T-AFS 10)

### Fast Combat Support Ships T-AOE

USNS *Supply* (T-AOE 6)  
USNS *Rainier* (T-AOE 7)  
USNS *Arctic* (T-AOE 8)

### Hospital Ships T-AH

USNS *Mercy* (T-AH 19)  
USNS *Comfort* (T-AH 20)

### Advanced Auxiliary Dry Cargo Ships T-AKE

*Lewis and Clark* (T-AKE 1)  
*Sacagawea* (T-AKE 2)

### Underway Replenishment Oilers T-AO

USNS *Henry J. Kaiser* (T-AO 187)  
USNS *John Lenthall* (T-AO 189)  
USNS *Walter S. Diehl* (T-AO 193)  
USNS *John Ericsson* (T-AO 194)  
USNS *Leroy Grumman* (T-AO 195)  
USNS *Kanawha* (T-AO 196)  
USNS *Pecos* (T-AO 197)  
USNS *Big Horn* (T-AO 198)  
USNS *Tippecanoe* (T-AO 199)  
USNS *Guadalupe* (T-AO 200)  
USNS *Patuxent* (T-AO 201)  
USNS *Yukon* (T-AO 202)  
USNS *Laramie* (T-AO 203)  
USNS *Rappahannock* (T-AO 204)

### Fleet Ocean Tugs T-ATF

USNS *Catawba* (T-ATF 168)

### USNS *Comfort* (T-AH 20)

Photo by Paul Farley



USNS *Navajo* (T-ATF 169)  
USNS *Mohawk* (T-ATF 170)  
USNS *Sioux* (T-ATF 171)  
USNS *Apache* (T-ATF 172)

USNS *Bruce C. Heezen* (T-AGS 64)  
USNS *Mary Sears* (T-AGS 65)

### Air Defense Ships T-AGOS

USNS *Capable* (T-AGOS 16)

### Special Mission Charter Ships

MV *Carolyn Chouest*  
MV *Dolores Chouest*  
MV *Kellie Chouest*  
MV *Cory Chouest*  
MV *C-Commando*

### High Speed Vessels (HSV)

MV *Swift* (HSV 2)  
MV *Westpac Express*

## PREPOSITIONING PROGRAM/MARITIME PREPOSITIONING PROGRAM

### Container Ships T-AK

MV *Capt. Steven L. Bennett*  
(T-AK 4296)  
MV *Maj. Bernard F. Fisher*  
(T-AK 4396)  
MV *A1C William A. Pitsenbarger*  
(T-AK 4638)  
MV *Merlin* (T-AK 323)  
MV *LTC John U.D. Page*  
(T-AK 4496)  
MV *SSG Edward A. Carter Jr.*  
(T-AK 4544)

### Maritime Prepositioning Ships T-AK

MV *Cpl. Louis J. Hauge Jr.*  
(T-AK 3000)  
MV *PFC William B. Baugh*  
(T-AK 3001)  
MV *PFC James Anderson Jr.*  
(T-AK 3002)  
MV *1st Lt. Alex Bonnyman*  
(T-AK 3003)  
MV *Pvt. Franklin J. Phillips*  
(T-AK 3004)  
MV *Sgt. Matej Kocak* (T-AK 3005)  
MV *PFC Eugene A. Obregon*  
(T-AK 3006)  
MV *Maj. Stephen W. Pless*  
(T-AK 3007)  
MV *2nd Lt. John P. Bobo*  
(T-AK 3008)  
MV *PFC Dewayne T. Williams*  
(T-AK 3009)  
MV *1st Lt. Baldomero Lopez*  
(T-AK 3010)  
MV *1st Lt. Jack Lummus*  
(T-AK 3011)  
MV *Sgt. William R. Button*  
(T-AK 3012)  
USNS *1st Lt. Harry L. Martin*  
(T-AK 3015)  
USNS *Gunnery Sgt. Fred W. Stockham* (T-AK 3017)  
USNS *Lance Cpl. Roy M. Wheat*  
(T-AK 3016)

### Transport Tankers T-AOT

SS *Chesapeake* (T-AOT 5084)  
SS *Petersburg* (T-AOT 9101)

### Aviation Logistics Ships T-AVB

SS *Wright* (T-AVB 3)  
SS *Curtiss* (T-AVB 4)

### Large, Medium-speed Roll-on/ Roll-off Ships T-AKR

USNS *Watson* (T-AKR 310)  
USNS *Sisler* (T-AKR 311)  
USNS *Dahl* (T-AKR 312)  
USNS *Red Cloud* (T-AKR 313)  
USNS *Charlton* (T-AKR 314)  
USNS *Watkins* (T-AKR 15)  
USNS *Pomeroy* (T-AKR 316)  
USNS *Soderman* (T-AKR 317)

## SEALIFT FORCE

### Fast Sealift Ships T-AKR

USNS *Algol* (T-AKR 287)  
USNS *Bellatrix* (T-AKR 288)  
USNS *Denebola* (T-AKR 289)  
USNS *Pollux* (T-AKR 290)  
USNS *Altair* (T-AKR 291)  
USNS *Regulus* (T-AKR 292)  
USNS *Capella* (T-AKR 293)  
USNS *Antares* (T-AKR 294)

### Large, Medium-speed Roll-on/ Roll-off Ships T-AKR

USNS *Gordon* (T-AKR 296)  
USNS *Gilliland* (T-AKR 298)  
USNS *Shughart* (T-AKR 295)  
USNS *Yano* (T-AKR 297)  
USNS *Bob Hope* (T-AKR 300)  
USNS *Fisher* (T-AKR 301)  
USNS *Seay* (T-AKR 302)  
USNS *Mendonca* (T-AKR 303)  
USNS *Pililaau* (T-AKR 304)  
USNS *Brittin* (T-AKR 305)  
USNS *Benavidez* (T-AKR 306)

### Transport Tankers T-AOT

MV *Gus W. Darnell* (T-AOT 1121)  
USNS *Paul Buck* (T-AOT 1122)  
USNS *Samuel L. Cobb*  
(T-AOT 1123)  
USNS *Richard G. Matthiesen*  
(T-AOT 1124)  
USNS *Lawrence H. Gianella*  
(T-AOT 1125)  
MT *Montauk*

### Long-term Chartered Container Ships

MV *Sagamore*

### Ice-strengthened Container Ship

MV *American Tern*

Source: Military Sealift Command

USS *George Washington* (CVN 73) comes alongside the oiler USNS *Kanawha* (T-AO 196) for a replenishment at sea.

Photo by PHAN Joan Kretschmer





## ATTACK SUBMARINES

Attack submarines are designed to seek and destroy enemy submarines and surface ships. A number of Third World countries are acquiring modern state-of-the-art, non-nuclear submarines. Countering this threat is the primary mission of U.S. nuclear attack submarines. Other missions range from intelligence collection and special forces delivery to anti-ship and strike warfare. The new *Seawolf*-class submarine is designed to be exceptionally quiet, fast and well-armed with advanced sensors. It is a multi-mission vessel, capable of deploying to forward ocean areas to search out and destroy enemy submarines and surface ships and to fire missiles in support of other forces.

### Los Angeles-class

**Power Plant:** One nuclear reactor, one shaft  
**Length:** 360 feet  
**Beam:** 33 feet  
**Displacement:** Approx. 6,900 tons  
**Speed:** 20+ knots (23+ mph)  
**Crew:** 13 officers, 121 enlisted  
**Armament:** *Tomahawk* missiles, VLS tubes (SSN 719 and later), MK-48 torpedoes, four torpedo tubes (*Seawolf* has eight).

### Ships:

USS *Los Angeles* (SSN 688)  
USS *Philadelphia* (SSN 690)  
USS *Memphis* (SSN 691)  
USS *Bremerton* (SSN 698)  
USS *Jacksonville* (SSN 699)  
USS *Dallas* (SSN 700)  
USS *La Jolla* (SSN 701)  
USS *City of Corpus Christi* (SSN 705)  
USS *Albuquerque* (SSN 706)  
USS *Portsmouth* (SSN 707)  
USS *Minneapolis-St. Paul* (SSN 708)  
USS *Hyman G. Rickover* (SSN 709)  
USS *Augusta* (SSN 710)  
USS *San Francisco* (SSN 711)  
USS *Houston* (SSN 713)  
USS *Norfolk* (SSN 714)

USS *Buffalo* (SSN 715)  
USS *Salt Lake City* (SSN 716)  
USS *Olympia* (SSN 717)  
USS *Honolulu* (SSN 718)  
USS *Providence* (SSN 719)  
USS *Pittsburgh* (SSN 720)  
USS *Chicago* (SSN 721)  
USS *Key West* (SSN 722)  
USS *Oklahoma City* (SSN 723)  
USS *Louisville* (SSN 724)  
USS *Helena* (SSN 725)  
USS *Newport News* (SSN 750)  
USS *San Juan* (SSN 751)  
USS *Pasadena* (SSN 752)  
USS *Albany* (SSN 753)  
USS *Topeka* (SSN 754)  
USS *Miami* (SSN 755)  
USS *Scranton* (SSN 756)  
USS *Alexandria* (SSN 757)  
USS *Asheville* (SSN 758)  
USS *Jefferson City* (SSN 759)  
USS *Annapolis* (SSN 760)  
USS *Springfield* (SSN 761)  
USS *Columbus* (SSN 762)  
USS *Santa Fe* (SSN 763)  
USS *Boise* (SSN 764)  
USS *Montpelier* (SSN 765)  
USS *Charlotte* (SSN 766)  
USS *Hampton* (SSN 767)  
USS *Hartford* (SSN 768)  
USS *Toledo* (SSN 769)  
USS *Tucson* (SSN 770)  
USS *Columbia* (SSN 771)  
USS *Greenville* (SSN 772)  
USS *Cheyenne* (SSN 773)

### Seawolf-class

**Power Plant:** One nuclear reactor, one shaft  
**Length:** 353 feet  
**Draft:** 35 feet  
**Beam:** 40 feet  
**Displacement:** 8,060 tons  
**Speed:** 25+ knots (28+ mph)  
**Crew:** 13 officers; 121 enlisted.

### Ships:

USS *Seawolf* (SSN 21)  
USS *Connecticut* (SSN 22)  
*Jimmy Carter* (SSN 23)\*

### Virginia-class

**Power Plant:** One nuclear reactor, one shaft  
**Length:** 377 feet  
**Beam:** 34 feet  
**Displacement:** Approx. 7,800 tons  
**Speed:** 25+ knots (28+ mph)  
**Crew:** 134 officers and enlisted  
**Armament:** *Tomahawk* missiles, VLS tubes, MK-48 torpedoes, four torpedo tubes, advanced mobile mines, and unmanned undersea vehicles.

### Ships:

*Virginia* (SSN 774)\*  
*Texas* (SSN 775)\*  
*Hawaii* (SSN 776)\*  
*North Carolina* (SSN 777), delivery in 2007

## BALLISTIC MISSILE SUBMARINES

Strategic deterrence has been the sole mission of the fleet ballistic missile submarine (SSBN) since its inception in 1960. The SSBN provides the nation's most survivable and enduring nuclear strike capability. The *Ohio*-class submarine replaced aging fleet ballistic missile submarines built in the 1960s and is far more capable.

*Ohio*-class/*Trident* ballistic missile submarines provide the sea-based "leg" of the triad of U.S. strategic deterrent forces. The first four *Ohio*-class submarines are scheduled for conversion to guided-missile submarines (SSGN) with an additional capability to transport and support Navy special operations forces.

### Ohio-class

**Power Plant:** One nuclear reactor, one shaft  
**Length:** 560 feet  
**Beam:** 42 feet  
**Displacement:** 16,764 tons  
**Speed:** 20+ knots (23+ mph)  
**Crew:** 15 officers, 140 enlisted

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**Armament:** 24 tubes for *Trident I* and *II*, MK-48 torpedoes, four torpedo tubes.

### Ships:

USS *Henry M. Jackson* (SSBN 730)  
USS *Alabama* (SSBN 731)  
USS *Alaska* (SSBN 732)  
USS *Nevada* (SSBN 733)  
USS *Tennessee* (SSBN 734)  
USS *Pennsylvania* (SSBN 735)  
USS *West Virginia* (SSBN 736)  
USS *Kentucky* (SSBN 737)  
USS *Maryland* (SSBN 738)  
USS *Nebraska* (SSBN 739)  
USS *Rhode Island* (SSBN 740)  
USS *Maine* (SSBN 741)  
USS *Wyoming* (SSBN 742)  
USS *Louisiana* (SSBN 743)

### Ships undergoing conversion to SSGN:

USS *Ohio* (SSBN 726) – Out of service Oct. 29, 2002, for conversion to SSGN, Puget Sound Naval Shipyard  
USS *Florida* (SSBN 728) – conversion to SSGN scheduled for October 2003, Norfolk  
USS *Michigan* (SSBN 727) – conversion to SSGN scheduled for October 2003  
USS *Georgia* (SSBN 729) – conversion to SSGN scheduled for 2004

## DEEP SUBMERGENCE RESCUE VEHICLES

Deep Submergence Rescue Vehicles (DSRV) perform rescue operations on submerged, disabled submarines of the U.S. Navy or foreign navies. DSRVs can embark up to 24 personnel for transfer to another vessel. The DSRV also has an arm to clear hatches on a disabled submarine and a combined gripper and cable cutter. The gripper is able to lift 1,000 pounds.

**Power Plant:** Electric motors, silver/zinc batteries, one shaft, 15 shaft horsepower, four thrusters,



USS *Ohio* (SSBN 726)  
U.S. Navy Photo

7.5 horsepower.  
**Length:** 49 feet  
**Beam:** 8 feet  
**Displacement:** 38 tons  
**Speed:** 4 knots  
**Maximum Depth:** 5,000 feet  
**Sonar:** Search and navigation  
**Crew:** Two pilots, two rescue personnel and the capacity for 24 passengers

### Ships:

DSRV *Mystic*  
DSRV *Avalon*

## SUBMERSIBLE RESEARCH VEHICLES

NR-1, a nuclear-powered ocean engineering and research submarine, is the first deep submergence vessel using nuclear power. NR-1's missions have included search, object recovery, geological survey, oceanographic research, and installation and maintenance of underwater equipment. NR-1 is gener-

ally towed to and from remote mission locations by an accompanying surface tender, which is also capable of conducting research in conjunction with the submarine.

**Power Plant:** One nuclear reactor, one turbo-alternator; Two motors (external), two propellers, four ducted thrusters (two horizontal, two vertical)  
**Length:** 150 feet  
**Displacement:** 400 tons  
**Diameter:** 12 feet  
**Maximum Operating Depth:** 2,375 feet  
**Crew:** 2 officer, 3 enlisted, 2 scientists  
**Armament:** None

### Ships:

Submarine NR-1 (Nuclear)

\* *Under Construction*



# Submarines

USS Asheville (SSN 758)

Photo by JO2 Thomas C. Peterson



## RESEARCH SUBMARINE

USS *Dolphin* (AGSS 555) is the Navy's only operational diesel-electric, deep-diving research and development submarine. The submarine has amassed an impressive record of scientific and military accomplishments and now serves as a unit of the U.S. Naval Submarine Force, U.S. Pacific Fleet, under Commander, Submarine Development Squadron 5.

Features: Because she was designed as a test platform, *Dolphin* can be modified both internally and externally to allow installation of up to 12 tons of special research and test equipment. The submarine has internal and external mounting points, multiple electronic hull connectors, and up to 10 equipment racks for project use.

**Power Plant:** Diesel/Electric;  
Two GM 12-cylinder, 425 HP engines  
**Length:** 165 feet  
**Displacement:** 950 tons  
**Diameter:** 18 feet

**Operating Depth:** 3,000 feet  
**Crew:** 5 officer, 46 enlisted, and up to 5 scientists  
**Armament:** None

**Ship:**  
USS *Dolphin* (AGSS 555)

## LARGE SCALE VEHICLE 2

LSV 2 *Cutthroat*, the world's largest unmanned autonomous submarine, will offer the capability to conduct a wide variety of studies, dramatically improving the acoustic and operational performance of future submarines. *Cutthroat*, a 205-ton, large scale submarine test vehicle, will be used to affordably explore and test emerging technologies and to conduct physics-based experiments. Specific emphasis will be on stealth, hydrodynamics, hydro-acoustics and propulsion designs to permit technology insertion into current and future submarines.

**Propulsion:** Electric drive (3,000 shaft horsepower (shp) plant coupled with electric motor controller, expandable to 6,000 shp with additional motor controlled modules).  
**Length:** 111 feet  
**Diameter:** 10 feet  
**Weight:** 205 tons  
**Armament:** None  
**Crew:** None

**Ships:**  
*Cutthroat* (LSV 2)

Source: Navy Fact File

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## Aircraft Carriers

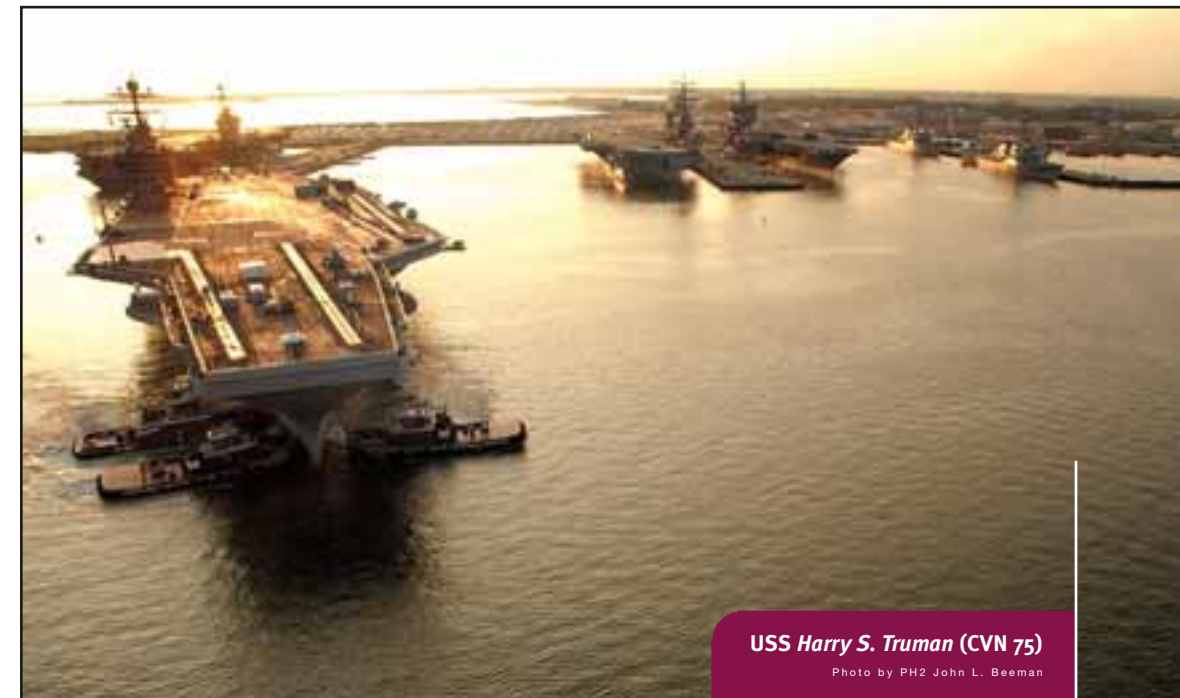
The aircraft carrier continues to be the centerpiece of the forces necessary for forward presence. Whenever there has been a crisis, the first question has been: "Where are the carriers?" Carriers support and operate aircraft that engage in attacks on airborne, afloat, and ashore targets that threaten free use of the sea; and engage in sustained operations in support of other forces.

Aircraft carriers are deployed worldwide in support of U.S. interests and commitments. They can respond to global crises in ways ranging from peacetime presence to full-scale war. Together with their on-board air wings, the carriers have vital roles across the full spectrum of conflict.

### Nimitz-class

**Length, overall:** 1,092 feet  
**Flight Deck Width:** 252 feet  
**Beam:** 134 feet  
**Displacement:** Approx. 97,000 tons  
**Aircraft:** 85  
**Speed:** 30+ knots (34.5+ mph)  
**Crew:** 3,200; Air Wing: 2,480  
**Armament:** Two or three (depending on modification) NATO *Sea Sparrow* launchers, 20mm *Phalanx* CIWS mounts: (three on *Nimitz* and *Dwight D. Eisenhower* and four on *Carl Vinson* and later ships of the class.)

**Carriers:**  
USS *Nimitz* (CVN 68)  
USS *Dwight D. Eisenhower* (CVN 69)  
USS *Carl Vinson* (CVN 70)  
USS *Theodore Roosevelt* (CVN 71)  
USS *Abraham Lincoln* (CVN 72)  
USS *George Washington* (CVN 73)  
USS *John C. Stennis* (CVN 74)  
USS *Harry S. Truman* (CVN 75)  
USS *Ronald Reagan* (CVN 76)  
*George H. W. Bush* (CVN 77)\*  
(keel laid Sept. 6, 2003)



USS Harry S. Truman (CVN 75)

Photo by PH2 John L. Beeman

### John F. Kennedy-class

**Length, overall:** 1,052 feet  
**Flight Deck Width:** 252 feet  
**Beam:** 130 feet  
**Displacement:** 82,000 tons  
**Speed:** 30+ knots (34.5 mph)  
**Aircraft:** 85  
**Crew:** 3,117; Air Wing 2,480  
**Armament:** *Sea Sparrow* missiles with box launchers, Three 20mm *Phalanx* CIWS mounts.

**Carriers:**  
USS *John F. Kennedy* (CV 67)

### Enterprise-class

**Length, overall:** 1,101 feet  
2 inches  
**Flight Deck Width:** 252 feet  
**Beam:** 133 feet  
**Displacement:** 89,600 tons  
**Speed:** 30+ knots (34.5+ mph)  
**Aircraft:** 85

**Crew:** 3,350; Air Wing 2,480  
**Armament:** Two *Sea Sparrow* missile launchers, three 20mm *Phalanx* CIWS mounts.

**Carriers:**  
USS *Enterprise* (CVN 65)

### Kitty Hawk-class

**Length, overall:** 1,062.5 feet  
**Flight Deck Width:** 252 feet  
**Beam:** 130 feet  
**Displacement:** Approx. 80,800 ton  
**Speed:** 30+ knots (34.5+ mph)  
**Aircraft:** 85  
**Crew:** 3,150; Air Wing: 2,480  
**Armament:** *Sea Sparrow* launchers, three 20mm *Phalanx* CIWS mounts

**Carriers:**  
USS *Kitty Hawk* (CV 63)

\* Under Construction

Source: Navy Fact File



## CARRIER-BASED

### F/A-18 Hornet

The F/A-18 is an all-weather attack aircraft that can also be used as a fighter. In its fighter mode, the F/A-18 is used primarily as an escort and for fleet air defense. In its attack mode, it is used for force projection, interdiction and close-air support

**Wingspan:** 37.5 ft.  
**Length:** 56 ft.  
**Height:** 15 ft., 3.5 in.  
**Speed:** Mach 1.8+  
**Range:** 290 nm  
**Armament:** 20mm MK-61 *Vulcan* cannon; *Sparrow III* and *Sidewinder* air-to-air missiles; laser-guided and general purpose bombs; *Harpoon* and *HARM*  
**Crew:** one or two.

### SQUADRONS

Blue Angels  
 VFA-15 Valions  
 VFA-22 Fighting Redcocks  
 VFA-25 Fist of the Fleet  
 VFA-27 Royal Macs  
 VFA-37 Bulls  
 VFA-81 Sunliners  
 VFA-82 Marauders  
 VFA-83 Rampagers  
 VFA-86 Sidewinders  
 VFA-87 Golden Warriors  
 VFA-94 Mighty Shrikes  
 VFA-97 Warhawks  
 VFA-105 Gunslingers  
 VFA-106 (USNR) Gladiators  
 VFA-113 Stingers  
 VFA-122 Redcocks  
 VFA-125 (USNR) Rough Raiders  
 VFA-131 Wildcats  
 VFA-132 Privateers  
 VFA-136 Knighthawks  
 VFA-137 Kestrels  
 VFA-146 Blue Diamonds  
 VFA-147 Argonauts  
 VFA-151 Vigilantes  
 VFA-192 Golden Dragons  
 VFA-195 Dambusters  
 VFA-201(USNR) Hunters



F/A-18F Super Hornet  
 Photo by PHAN Mark J. Rebilas

VFA-203(USNR) Blue Dolphins  
 VFA-204(USNR) River Rattlers  
 VFC-12(USNR) Fighting Omars  
 VFC-13 (USNR) Fighting Saints

### F/A-18E/F Super Hornet

The F/A-18E/F will provide the carrier strike group with a strike fighter that has significant growth potential and increased range, endurance and ordnance-carrying capabilities. It will eventually replace the F-14 on carrier decks.

**Wingspan:** 44 ft., 8.5 in.  
**Length:** 60 ft., 1.25 in.  
**Height:** 16 ft.  
**Weight:** 66,000 lbs. maximum takeoff  
**Speed:** Mach 1.8+  
**Ceiling:** 50,000 ft.  
**Range:** 462 nm  
**Armament:** 20mm MK-61 *Vulcan* cannon; *Sidewinder*, *Sparrow* and *AMRAAM* air-to-air missiles; *Maverick*, *Harpoon*, *Shrike*, *HARM*, *SLAM-ER* and Joint Direct Attack Munition (JDAM); *Walleye* and other bombs and rockets.  
**Crew:** one or two

### SQUADRONS

VFA-2 Bounty Hunters  
 VFA-14 Tophatters  
 VFA-41 Black Aces  
 VFA-102 Diamondbacks  
 VFA-115 Eagles  
 VFA-122 Flying Eagles  
 VFA-154 Black Knights

### F-14 Tomcat

The F-14 is a supersonic, twin-engine, variable sweep-wing fighter designed to attack and destroy enemy aircraft at night and in all weather conditions. The F-14 can track up to 24 targets simultaneously with its advanced weapons control system and engage any of them with one of its six *Phoenix* missiles while continuing to scan the airspace.

**Wingspan:** 64 ft., 1.5 in.  
**Length:** 62 ft., 8 in.  
**Height:** 16 ft.  
**Weight:** 74,349 lbs. maximum takeoff  
**Speed:** Mach 1.88  
**Ceiling:** 50,000 ft.  
**Range:** 1,600 nm (with external fuel)  
**Armament:** 20mm MK-61 *Vulcan* cannon; *Sparrow*, *Sidewinder* and *Phoenix* air-to-air missiles; laser-guided and general purpose bombs  
**Crew:** two (one pilot, one radar intercept officer).

### SQUADRONS

VF-11 Red Rippers  
 VF-31 Tomcatters  
 VF-32 Swordsman  
 VF-101 Grim Reapers  
 VF-103 Jolly Rogers  
 VF-143 Puking Dogs  
 VF-211 Checkmates  
 VF-213 Black Lions

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### EA-6B Prowler

The EA-6B, a twin-engine, mid-wing aircraft designed for carrier and advanced base operations, is used to provide an umbrella of protection for strike aircraft by jamming enemy radar, electronic data links and communications. The EA-6B is a fully integrated electronic warfare system, combining long-range, all-weather capabilities with advanced electronic countermeasures.

**Wingspan:** 53 ft.  
**Length:** 59 ft., 10 in.  
**Height:** 16 ft., 3 in.  
**Weight:** 65,000 lbs. maximum takeoff  
**Speed:** 622 mph  
**Ceiling:** 41,200 ft.  
**Combat Range:** 955 nm  
**Armament:** *HARM*  
**Crew:** four (one pilot, three electronic countermeasure officers).

### SQUADRONS

VAQ-128 Fighting Phoenix  
 VAQ-129 (USNR) Vikings  
 VAQ-130 Zappers  
 VAQ-131 Lancers  
 VAQ-132 Scorpions  
 VAQ-133 Wizards  
 VAQ-134 Garudas  
 VAQ-135 Black Ravens  
 VAQ-136 Gauntlets  
 VAQ-137 Rooks  
 VAQ-138 Yellowjackets  
 VAQ-139 Cougars  
 VAQ-140 Patriots  
 VAQ-141 Shadowhawks  
 VAQ-142 Gray Wolves  
 VAQ-209 (USNR) Star Warriors

### S-3B Viking

The S-3B, a jet aircraft used for surface search and control, is extremely versatile and can be equipped for tanking, day/night surveillance, electronic countermeasures and command/control/communications warfare.

**Wingspan:** 68 ft., 8 in.  
**Length:** 53 ft., 4 in.

**Height:** 22 ft., 9 in.  
**Weight:** 52,539 lbs. maximum design gross weight  
**Speed:** 518 mph  
**Ceiling:** more than 35,000 ft.  
**Range:** more than 2,300 nm (combat)  
**Armament:** torpedoes, bombs, *Harpoon*, *Maverick*, and *SLAM-ER*  
**Crew:** two to four (one pilot, one to three flight officers and one sensor operator).

### SQUADRONS

VS-21 Fighting Redtails  
 VS-22 Checkmates  
 VS-24 Scouts  
 VS-29 Dragonfires  
 VS-30 Diamond Cutters  
 VS-31 Top Cats

VS-32 Maulers  
 VS-33 Screwbirds  
 VS-35 Blue Wolves  
 VS-38 Red Griffins  
 VS-41 (USNR) Shamrocks

### E-2C Hawkeye

The E-2C is the Navy's all-weather, carrier-based tactical warning and control system aircraft. It provides airborne early warning and command and control functions for the strike group. Additional missions include: surface surveillance coordination, strike and interceptor control, search and rescue guidance and communications relay.

**Wingspan:** 80 ft., 7 in.  
**Length:** 57 ft., 8.75 in.  
**Height:** 18 ft., 3.75 in.



F-14 Tomcat  
 Photo by PHC Spike Call



**Weight:** 53,288 lbs. maximum takeoff  
**Speed:** 350 mph  
**Ceiling:** 37,000 ft.  
**Range:** 1,541 nm (ferry range)  
**Crew:** five (two pilots, three mission systems operators).

## SQUADRONS

VAW-77 (USNR) Night Wolves  
 VAW-78 (USNR) Fighting Escargots  
 VAW-112 Golden Hawks  
 VAW-113 Black Eagles  
 VAW-115 Liberty Bells  
 VAW-116 Sun Kings  
 VAW-117 Wallbangers  
 VAW-120 Greyhawks  
 VAW-121 Bluetails  
 VAW-123 Screwtops  
 VAW-124 Bear Aces  
 VAW-125 Tigertails  
 VAW-126 Seahawks

## C-2A Greyhound

The C-2A is the principal aircraft used for COD (carrier on-board delivery) of personnel and materiel. It can deliver a payload of up to 10,000 lbs.

**Wingspan:** 80 ft 6 in.  
**Length:** 57 ft., 10 in.  
**Height:** 15 ft., 10.5 in.  
**Weight:** 57,000 lbs. maximum takeoff  
**Speed:** 310 mph  
**Ceiling:** 33,500 ft.  
**Range:** more than 1,040 nm (with freight)  
**Crew:** four.

## SQUADRONS

VRC-30 Providers  
 VRC-40 Rawhides

## S-3B Viking

Photo by PH3 Todd Frantom



## SHORE-BASED

### E-6B Mercury

The E-6B *Mercury* aircraft provides a survivable communications link between national decision makers and the country's arsenal of strategic nuclear weapons. The E-6B enables the President of the United States and the Secretary of Defense to directly contact submariners, bombers and missile silos protecting our national security through nuclear deterrence.

**Wingspan:** 148 ft., 2 in.  
**Length:** 152 ft., 11 in.  
**Height:** 42 ft., 5 in.  
**Weight:** 341,000 lbs. maximum takeoff  
**Speed:** 523 mph  
**Ceiling:** 42,000 ft.  
**Range:** more than 6,600 nm  
**Crew:** 23.

## SQUADRONS

VQ-3 Ironmen  
 VQ-4 Shadows  
 VQ-7 Roughnecks

### P-3C Orion/EP-3E (Aries II)

The P-3, a land-based, long-range patrol aircraft, has been in the Navy since the 1960s. Both versions provide multi-mission intelligence, surveillance, reconnaissance and combat capability to theater commanders worldwide.

**Wingspan:** 99 ft., 8 in.  
**Length:** 116 ft., 10 in.  
**Height:** 33 ft., 8.5 in.

**Weight:** 146,000 lbs. maximum permissible  
**Speed:** 473 mph  
**Ceiling:** 28,300 ft.  
**Range:** 1,346 nm with three hours on station  
**Armament:** *Harpoon* and *Maverick*; torpedoes; mines  
**Crew:** 11.

## SQUADRONS

VP-1 Screaming Eagles  
 VP-4 Skinny Dragons  
 VP-5 Mad Foxes  
 VP-8 Tigers  
 VP-9 Golden Eagles  
 VP-10 Red Lancers  
 VP-16 War Eagles  
 VP-26 Tridents  
 VP-30 Pro's Nest  
 VP-40 Fighting Marlins  
 VP-45 Pelicans  
 VP-46 Grey Knights  
 VP-47 Golden Swordsmen  
 VP-62 (USNR) Broad Arrows  
 VP-64 (USNR) The Condors  
 VP-65 (USNR) Tridents  
 VP-66 (USNR) The Liberty Bells  
 VP-69 (USNR) Totems  
 VP-92 (USNR) Minutemen  
 VP-94 (USNR) Crawfishers  
 VQ-1 World Watchers  
 VQ-2 Sandman  
 VQ-11 (USNR) Bandits  
 VPU-1 Old Buzzards  
 VPU-2 Wizards

### C-130 Hercules

The C-130 is probably the most versatile tactical transport aircraft ever

# U.S. NAVY Owner's & Operator's AllHANDS Manual 2004

built. Its uses have been almost limitless: transport, electronic surveillance, search and rescue, space-capsule recovery, helicopter refueling, gunship and special cargo delivery.

**Wingspan:** 132 ft., 7 in.  
**Length:** 97 ft., 9 in.  
**Height:** 38 ft., 10 in.  
**Weight:** 175,000 lbs. maximum takeoff  
**Speed:** 400 mph maximum  
**Ceiling:** 28,000 ft.  
**Range:** 4,460 nm  
**Crew:** five (two pilots, one navigator, one loadmaster, one flight engineer).

## SQUADRONS

VR-53 (USNR) Capital Express  
 VR-54 (USNR) Revelers  
 VR-55 (USNR) Minutemen  
 VR-62 (USNR) Nor'easters

### C-9B/DC-9 Skytrain II

The C-9B is used for fleet logistics support and military sealfit.

**Wingspan:** 93 ft., 5 in.  
**Length:** 119 ft., 3.5 in.  
**Height:** 27.5 feet  
**Weight:** 121,000 lbs. maximum takeoff  
**Speed:** 575 mph  
**Range:** 2,185 nm  
**Crew:** (one pilot, one co-pilot, one crew chief, two attendants and 90 passengers).

## SQUADRONS

VR-46 (USNR) Eagles  
 VR-52 (USNR) The Taskmasters  
 VR-56 (USNR) Globemasters  
 VR-57 (USNR) Conquistadores  
 VR-58 (USNR) Sunseekers  
 VR-61 (USNR) Islanders

### C-40A Clipper

The C-40A *Clipper* provides critical logistics support to the Navy. Its flight deck features a flight management computer system with an inte-

grated GPS. It is compatible with future GATM/FANS operating environment (RNP-1). It is RVSM capable. It has the Traffic Alert and Collision Avoidance System II aboard. It also has an enhanced ground proximity warning system, predictive wind shear, head-up display and TACAN/UHF/IFF functions. The U.S. Naval Reserve, who operates and maintains the aircraft, is the first customer for the newest member of the Boeing Next-Generation 737 family. The *Clipper* was ordered by the Navy to replace its fleet of aging C-9 Skytrains. The C-40A is the first new logistics aircraft in 17 years to join the Naval Reserve. Currently, the Naval Reserve provides 100 percent of the Navy's worldwide in-theater medium and heavy airlift.

**Propulsion:** Two CFM56-7 SLST engines  
**Length:** 110 feet 4 inches  
**Height:** 41 feet 2 inches  
**Wingspan:** 112 feet 7 inches  
**Weight:** Max. gross, take-off: 171,000 lbs/.  
**Cruising Speed:** Range: 0.78 to 0.82 Mach (585 to 615 mph,)  
**Ceiling:** 41,000 feet  
**Range:** 3,000 nautical miles with 121 passengers or 40,000 lbs. of cargo  
**Crew:** Four

## SQUADRON

VR-59 Lone Star Express

### C-12 Huron

The UC-12B/F/M *Huron* is a utility transport, equipped with high floatation landing gear and tip tanks. The UC-12F and UC-12M models also have hydraulically retractable landing gear.

**Wingspan:** 54 ft., 6 in.  
**Length:** 43 ft., 9 in.  
**Height:** 15 ft.  
**Weight:** 12,500 lbs. maximum takeoff  
**Speed:** 298 mph maximum  
**Ceiling:** more than 35,000 ft.  
**Range:** 1,965 nm



## CH-53 Super Stallion

Photo by USMC LCpl. Jonathan Sotelo

**Payload:** 4,215 pounds of cargo or eight passengers  
**Crew:** two.

## TRAINERS

### T-34C Turbomentor

The T-34C is the Navy's aircraft for primary pilot and navigator training. Six training squadrons are equipped with the *Turbomentor*. As of mid-1998, 313 T-34Cs remained in service, along with one NT-34C developmental aircraft. The Raytheon T-6A Texan II replaced the T-34C.

**Wingspan:** 33 ft., 4 in.



# Aircraft

**Length:** 28 ft., 8.5 in.  
**Height:** 9 ft., 11 in.  
**Weight:** 4,274 lbs. maximum takeoff  
**Speed:** 288 mph  
**Range:** 650 nm  
**Ceiling:** more than 30,000 ft.  
**Crew:** two (one instructor, one student).

## SQUADRONS

VT-2 Doer Birds  
 VT-3 Red Knights  
 VT-4 Mighty Warbucks  
 VT-6 Shooters  
 VT-10 Wildcats  
 VT-27 Boomers  
 VT-28 Rangers

## T-45 Goshawk

The T-45A *Goshawk*, a carrier-capable trainer aircraft, is replacing the T-2C *Buckeye* and TA-4J *Skyhawk* as the Navy's strike trainer. The Navy has 187 T-45s in service.

**Wingspan:** 30 ft., 9.75 in.  
**Length:** 39 ft., 4 in.  
**Height:** 14 ft.  
**Weight:** 14,081 lbs. maximum takeoff  
**Speed:** 625 mph  
**Range:** 826 nm  
**Ceiling:** 40,000 ft.  
**Crew:** two (one instructor, one student).

## SQUADRONS

VT-21 Redhawks  
 VT-22 Golden Eagles

## T-2 Buckeye

The T-2 is a two-seat trainer used to school pilots and flight officers in basic and intermediate strike training.

**Wingspan:** 38 ft., 1.5 in.  
**Length:** 38 ft., 3.5 in.  
**Height:** 14 ft., 9.5 in.  
**Weight:** 13,179 lbs. maximum takeoff  
**Speed:** 522 mph  
**Range:** 909 nm

## EA-6B Prowler

Photo by PH3 Todd Frantom



**Ceiling:** 40,400 ft.  
**Crew:** two (one instructor, one student).

## SQUADRONS

VT-9 Tigers  
 VT-86 Sabre Hawks

## T-44A Pegasus

The T-44A is used to train Navy and Air Force pilots to fly multi-engine, turbo-prop aircraft such as the P-3 and the C-130.

**Wingspan:** 45 ft., 10.75 in.  
**Length:** 39 ft., 9.5 in.  
**Height:** 15 ft., 1.75 in.  
**Weight:** 10,950 lbs. maximum takeoff  
**Speed:** 267 mph  
**Range:** 960 nm  
**Ceiling:** 31,000 ft.  
**Crew:** two (one instructor, one student).

## T-39N Sabreliner

The seven T-39N *Sabreliners* in service are used to train naval flight officers in radar navigation and airborne radar-intercept procedures. These aircraft replaced the Cessna T-47A during the early 1990s; the T-47As had replaced earlier T-39Ds in the training role. One T-39D rapid-response airlift *Sabreliner* remained in service as of mid-1998.

**Wingspan:** 44 ft., 5.25 in.  
**Length:** 48 ft., 4 in.  
**Height:** 16 ft.  
**Weight:** 20,000 lbs. maximum takeoff  
**Speed:** Mach .8

**Range:** 1,777 nm  
**Ceiling:** 27,000 ft.  
**Crew:** two (one instructor, one student).

## RQ-2A Unmanned Aerial Vehicle

The *Pioneer* UAV system performs a wide variety of reconnaissance, surveillance, target acquisition and battle damage assessment missions. The UAV's low radar cross section, low infrared signature and remote control versatility provides a degree of cover for the aircraft. *Pioneer* provides the tactical commander with real-time images of the battlefield or target. Since first deployed as a land-based system in 1986, *Pioneer* is currently configured for operations on five LPD class ships with a sixth ship under modifications.

The documented success of *Pioneer* in supporting combat operations and providing the battlefield commander critical intelligence information established the utility and importance of UAVs in combat.

**Propulsion:** Reciprocating 2-stroke, 2-cylinder 26-hp gasoline engine  
**Length:** 14.0 ft.  
**Wingspan:** 16.9 ft.  
**Weight:** Max design gross take-off: 416 lbs.  
**Speed:** 110 knots (109.37 mph)  
**Ceiling:** 15,000 ft.  
**Range:** 100+ nm  
**Current Deployment:**  
 USS *Austin* (LPD 4)  
 USS *Shreveport* (LPD 12)  
 USS *Denver* (LPD 9)

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USS *Cleveland* (LPD 7)  
 USS *Ponce* (LPD 15)  
 USS *Duluth* (LPD 6)  
 VC-6 Detachment Patuxent River, Md.

## HELICOPTERS

### SH/HH-60 Seahawk

The *Seahawk* is a twin-engine helicopter used for anti-submarine warfare, search and rescue, drug interdiction, anti-ship warfare, cargo lift and special operations. The SH-60B is an airborne platform based aboard cruisers, destroyers and frigates, that deploys sonobuoys and torpedoes in an anti-submarine role while extending the range of the ship's radar capabilities. The SH-60F is carrier based. The HH-60H is designed to accomplish today's combat search and rescue mission as well as other replenishment and utility functions.

**Length:** 40 ft., 11 in. (rotors and tail pylon folded)  
**Height:** 17 ft.  
**Weight:** 21,884 lbs. maximum takeoff  
**Speed:** 169 mph  
**Range:** 380 nm  
**Armament:** MK46/50 torpedoes (SH-60B/F); 7.62mm or .50-caliber machine guns; *Hellfire* and *Penguin* air-to-surface missiles (SH-60B/HH-60H)  
**Crew:** three (two pilots, one crewman (SH-60B)); or four (two pilots, two crewmen (SH-60F/HH-60H)).

## SQUADRONS

HS-2 Golden Falcons  
 HS-3 Tridents  
 HS-4 Black Knights  
 HS-5 Nightdippers  
 HS-6 Indians  
 HS-7 Dusty Dogs  
 HS-8 Eightballers  
 HS-10 War Hogs  
 HS-11 Dragonslayers  
 HS-14 Chargers



## UH-3H Sea King

Photo by PH2 Michael B. Watkins

HS-15 Red Lions  
 HS-75 (USNR) Emerald Knights  
 HCS-4 (USNR) Red Wolves  
 HCS-5 (USNR) Firehawks  
 HSL-37 Easy Riders  
 HSL-40 Airwolves  
 HSL-41 Seahawks  
 HSL-42 Proud Warriors  
 HSL-43 Battle Cats  
 HSL-44 Swamp Fox  
 HSL-45 Wolfpack  
 HSL-46 Grandmasters  
 HSL-47 Sabrehawks  
 HSL-48 Vipers  
 HSL-49 Scorpions  
 HSL-51 Warlords  
 HSL-60(USNR) Jaguars

**Height:** 16.7 ft.  
**Weight:** 23,000 lbs. maximum takeoff  
**Speed:** 162 mph  
**Ceiling:** 10,000 ft.  
**Range:** 150 nm  
**Crew:** three (two pilots, one crewman).

## SQUADRONS

HC-8 Dragon Whales  
 HC-11 Gunbearers

### MH-60 Knighthawk

The newly designed MH-60S is a twin-engine helicopter used for logistics support, vertical replenishment, search and rescue, naval special warfare support and future missions to include organic airborne mine countermeasures and combat search and rescue. It can accommodate 12 passengers, 4,733 pounds of internal cargo, and 8,000 pounds of external cargo.

**Length:** 41 ft., 4 in. (rotors and tail pylon folded); 64 ft., 10 in. (rotors turning)  
**Height:** 17 ft.  
**Weight:** 22,500 lbs, maximum

**Length:** 84.3 ft.

**Length:** 84.3 ft.



# Aircraft

take-off  
**Speed:** 209 mph  
**Range:** 250 nm.  
**Ceiling:** 13,000 ft  
**Crew:** four (two pilots, two crewman).

## SQUADRONS

HC-3 Pack Rats  
 HC 5 Providers  
 HC 6 Chargers

## SH-3 Sea King

The first version of this workhorse anti-submarine warfare helicopter was flown more than 38 years ago. The H-3's versatility was emphasized during Operation *Desert Shield/Desert Storm* when 36 *Sea Kings*, flying from carriers, logged more than 5,000 hours conducting combat SAR, special operations, maritime interdiction operations, logistics support and mine hunting. The SH-3H has been replaced in the fleet by SH-60F and HH-60H aircraft. The UH-3Hs are programmed to be replaced by the CH-60 version of the Sikorsky *Blackhawk/Seahawk*.

**Length:** 72 ft., 8 in  
**Height:** 16 ft., 10 in.  
**Weight:** 21,000 lbs. maximum takeoff  
**Speed:** 166 mph  
**Ceiling:** 14,700 ft.  
**Range:** 542 nm  
**Armament:** MK46/50 torpedoes, 7.62mm machine guns  
**Crew:** three to four (two pilots, one to two crewmen).

## SQUADRONS

HC-2 Fleet Angels

HC-11 Gunbearers  
 HC-85 (USNR) Golden Gaters  
 HS-75 (USNR) Emerald Knights  
 HSL-51 Warlords  
 VC-8 Redtails

## TH-57 Sea Ranger

The TH-57 *Sea Ranger* is used to train several hundred student naval aviators with 45 TH-57Bs (for primary visual flight rules training) and 71 TH-57Cs (for advanced instrument flight rules training) in two helicopter training squadrons at NAS Whiting Field, Milton, Fla.

**Length:** 39 ft.  
**Height:** 10 ft.  
**Weight:** 3,200 lbs. maximum takeoff  
**Speed:** 138 mph  
**Ceiling:** 20,000 ft., pressure altitude  
**Range:** 368 nm  
**Crew:** five (one pilot, four student pilots).

## SQUADRONS

HT-8 Eightballers  
 HT-18 Vigilant Eagles

## MH-53E Sea Dragon

The MH-53E, a mine-countermeasures derivative of the CH-53E *Super Stallion*, is heavier and has a greater fuel capacity than the *Super Stallion*. Capable of transporting up to 55 troops, the MH-53E can carry a 16-ton payload 50 nautical miles, or a 10-ton payload 500 nautical miles. In its

primary mission of airborne mine countermeasures, the MH-53E is capable of towing a variety of mine-countermeasures systems.

**Length:** 99 ft. (rotors turning)  
**Height:** 29 ft., 5 in. (tail rotor turning)  
**Weight:** 73,500 lbs. maximum takeoff  
**Speed:** 196 mph  
**Ceiling:** 18,500 ft  
**Range:** 1,120 nm  
**Crew:** three to eight (two pilots, one to six crewmen).

## SQUADRONS

HC-4 Black Stallions  
 HM-14 (USNR) Vanguard  
 HM-15 (USNR) Blackhawks

## SH-2G Seasprite

The SH-2G *Seasprite* first flew in 1959 and served as a utility and search-and-rescue helicopter and later as the first light airborne multipurpose system (LAMPS) helicopter.

**Length:** 38 ft., 4 in.  
 (nose and blades folded)  
**Height:** 15 ft., 6 in. (rotors turning)  
**Weight:** 12,800 lbs. normal takeoff  
**Speed:** 165 nm  
**Ceiling:** 22,500 ft.  
**Range:** 367 nm  
**Armament:** MK46/50 torpedoes; 7.62mm machine guns  
**Crew:** three (two pilots, one sensor operator).

## SQUADRONS

HSL-84 Thunderbolts  
 HSL-94 Titans

## SPECIAL SQUADRONS

VC-6 Firebees  
 VX-1 Pioneers  
 VX-9 Vampires



**SH-60 Seahawks**  
 Photo by PH3 William H. Ramsey

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## SeaBees

1st Naval Construction Division (INCD) and Naval Construction Forces Command (NCFC), NAB Little Creek, Va.

1NCD/NCFC  
 1NCD (FWD)

## Training Components

20th Seabee Readiness Group (SRG 20)  
 31st Seabee Readiness Group (SRG 31)

## Active

1NCD/NCFC 1NCD (FWD)  
 NCR 22 NCR 30

## Reserve

NCR 3 NCR 1  
 NCR 7 NCR 9

## Naval Mobile Construction Battalions (NMCB)

## Active

1NCD/NCFC 1NCD (FWD)  
 NMCB 1 NMCB 3  
 NMCB 7 NMCB 5  
 NMCB 74 NMCB 4  
 NMCB 133 NMCB 40

## Reserve

1NCD/NCFC 1NCD (FWD)  
 NMCB 14 NMCB 15  
 NMCB 21 NMCB 17  
 NMCB 23 NMCB 18  
 NMCB 24 NMCB 22  
 NMCB 26 NMCB 25  
 NMCB 27 NMCB 28

## Naval Amphibious Construction Battalions (ACB)

## Active

ACB 1  
 ACB 2

## Underwater Construction Teams (UCT)

## Active

1NCD/NCFC 1NCD (FWD)  
 UCT 1 UCT 2

## Active Naval Construction Battalion Units (CBU)

1NCD/NCFC 1NCD (FWD)  
 CBU 402 CBU 401  
 CBU 403 CBU 405  
 CBU 410 CBU 406  
 CBU 411 CBU 413  
 CBU 412 CBU 416  
 CBU 414 CBU 417  
 CBU 415 CBU 418  
 CBU 420 CBU 421  
 CBU 422 CBU 427  
 CBU 423

## Reserve Construction Battalion Maintenance Unit (CBMU)

1NCD/NCFC 1NCD (FWD)  
 CBMU 202 CBMU 303

## Reserve Naval Construction Force Support Units (NCFSU)

1NCD (FWD)  
 NCFSU 2



Seabees assigned to **Naval Mobile Construction Battalion (NMCB) 133** and **NMCB 7** construct a Mabey-Johnson bridge apparatus. **NMCB 133** deployed to build a bridge to replace one that was destroyed during **Operation Iraqi Freedom**.

Photo by PH2 Jacob A. Johnson



## COMMANDER NAVAL SPECIAL WARFARE COMMAND, CORONADO, CALIF.

### Commander, Naval Special Warfare Group (NSWG) 1, Coronado

Seal Teams 1/3/5/7  
Logistics Support Unit 1, Coronado  
Naval Special Warfare Unit (NSWU) 1, Guam  
NSWU 3, Bahrain

### Commander, NSWG 3, Coronado

Special Boat Team (SBT) 12, Coronado  
SEAL Delivery Vehicle Team (SDVT) 1, Hawaii  
SDVT 1, Advanced SEAL Delivery System (ASDS), Hawaii

## COMMANDER NAVAL SPECIAL WARFARE OPERATIONS SUPPORT GROUP (OSG), CORONADO

### Operations Support Team (OST) 1, Coronado

OST 2, Little Creek, Va.

### Navy Parachute Team "Leap Frogs"

### Commander, NSWG 2, Little Creek, Va.

Seal Teams 2/4/8/10  
Logistics Support Unit 2, Coronado  
NSWU 2, Germany  
NSWU 10, Spain

### Commander, NSWG 4, Little Creek, Va.

SBT 20, Little Creek, Va.  
SBT 22, Stennis, Miss.  
SDVT 2, Little Creek, Va.



Members of a SEAL Team use simulation rounds for training in Close Quarter Defense, preparing for real world missions. Apprehension and combat rescue tactics play a vital role in hostile scenarios.

Photo by PH2 Eric Logsdon

## Naval Special Warfare Command (Reserve Force as of Jan. 1, 2004)

### San Diego

Battle Staff Support Unit – West Det. A  
Battle Staff Support Unit – West Det. B  
Civil Engineer Support Equipment (CESE) Operations and Maintenance – West  
Coastal Craft (CC) Operations and Training Support – West  
Coastal CC Maintenance Support Unit– West  
Combat Service Support Det. (CSSD) – West Det. A  
Naval Special Warfare Intelligence Support Unit –West  
Warfare Command Staff Augmentation Unit  
NSWG 1 Staff Augmentation Unit  
NSWG 3 Staff Augmentation Unit

Communication Support Unit – West  
Military Sealift Command (MSC) Support Unit  
Training Detachment (TRADET) Support Unit – Assault West  
TRADET Support Unit – Air Ops West  
TRADET Support Unit – Marine Ops West  
TRADET Support Unit – Land Warfare West  
TRADET Support Unit – Sniper West  
TRADET Support Unit – TGM West  
TRADET Support Unit – Staff West  
OST 1 Admin Support Unit  
Logistics Support Medical Support – West  
Logistics Support Technical Support – West  
Nuclear, Chemical, Biological, Radiological (NCBR) – Defense  
NSW Voluntary Training Unit

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## Naval Special Warfare Command (Active Duty Force as of Jan. 1, 2004)

### Little Creek, Va.

Battle Staff Support Unit – East Det. B  
CESE Operations and Maintenance – East  
Coastal CC Operations and Training Support – East  
Coastal CC Maintenance Support Unit– East  
CSSD – East Det. A  
CSSD – East Det. B (AT/FP)  
Naval Special Warfare Intelligence Support Unit –East  
NSWG 2 Staff Augmentation Unit  
NSWG 4 Staff Augmentation Unit  
Communication Support Unit – East  
TRADET Support Unit – Assault East  
TRADET Support Unit – Air Ops East  
TRADET Support Unit – Marine Ops East  
TRADET Support Unit – Land Warfare East

TRADET Support Unit – SniperEast  
TRADET Support Unit – TGM East  
TRADET Support Unit – Staff East  
OST 2 Admin Support Unit  
Logistics Support Medical Support – East  
Logistics Support Technical Support – East  
Naval Special Warfare Voluntary Training Unit

### Port Hueneme, Calif. CSSD West Det.B

Fresno, Calif.  
Det. Lemoore

### Sacramento, Calif.

Riverine Training & Operations – West

### Honolulu

SDV Training & Operations – West  
SDV Maintenance – West

### Naval Special Warfare Dets.

Bangor, Wash.  
Denver  
Springfield, Mo.  
Great Lakes, Ill.  
Columbus, Ohio  
Providence, R.I.  
Colt's Neck, N.J.  
Washington, D.C.  
Tampa, Fla.  
Atlanta  
Austin, Texas

### Stennis, Miss., Riverine Training & Operations East

Riverine Maintenance East

Source: Naval Special Warfare Command

Members of Special Boat Team (SBT) 22 practice hostile file, narrow river beach extractions. SBT 22's primary mission is to conduct special operations in a riverine environment anywhere in the world.

Photo by PH2 Eric Logsdon





## STRATEGIC STRIKE

### *Trident I (C-4)*

The *Trident I* replaced the *Poseidon* in the Navy's ballistic missile inventory. It became operational in 1979 and is carried on *Ohio*-class ballistic missile submarines.

**Dimensions:** 74 x 408 in.

**Weight:** 73,000 lbs.

**Warhead:** Designed to carry eight W76/MK 4

**Propulsion:** Cross-linked, double-base fuel rocket

**Range:** 4,000 nm

### *Trident II (D-5)*

Larger and with more payload than the *Trident I*, the *Trident II* was first tested aboard a submarine in March 1989 and deployed in 1990.

**Dimensions:** 83 x 528 in.

**Weight:** 130,000 lbs.

**Warhead:** Designed to carry 12 W76/MK 4 or eight W88/MK 5

**Propulsion:** Solid-fuel rocket

**Range:** 4,000 nm

## GENERAL-PURPOSE BOMBS

The MK-80 series general-purpose bomb family was created in the late 1940s and has been the standard air-launched bomb for the services ever since. The general-purpose bomb family is designed to provide blast and fragmentation effects and is used extensively in a number of configurations including laser-guided bombs (LGBs), joint direct attack munitions (JDAM) and air-delivered mining applications. The unguided versions of the general-purpose bomb can also be delivered in freefall or retarded modes depending upon mission requirements.

There are now three basic versions of these bombs in inventory:

- 500 pound MK 82/BLU 111
- 1,000 pound MK 83/BLU 110 and
- 2,000 pound MK 84/BLU 117.



500-pound *BLU-111* penetrator bombs  
Photo by PHAN Mark J. Rebilas

The remaining versions of the MK 80 series bombs are being converted from the MK designation to the bomb-loaded unit (BLU) designation during new production. The Navy's MK 80 series bombs remaining in inventory are filled with H-6 high explosive; the newer BLU series bombs incorporate a PBXN-109 explosive that provides less sensitive characteristics and is considered safer to handle and stow.

### **Laser-Guided Bomb (LGB) Kits**

Laser-guided bomb kits were developed to enhance the terminal accuracy of air-launched, general-purpose bombs and entered the fleet's inventory in 1968. An LGB kit consists of a Computer Control Group and Air Foil Group. The kit is normally attached to a general-purpose bomb to form an LGB.

### **Joint Direct Attack Munition (JDAM) Kit**

Joint Direct Attack Munitions kits were jointly developed with the U.S. Air Force to provide increased accuracy for air-launched bombs. The JDAM kit consists of a tail kit and mid-body strakes attached to a general purpose or penetrator bomb body. Guidance and control is provided by global positioning system aided inertial navigation system.

**Dimensions:** (JDAM and warhead) GBU-31 (v) 2/B: 152.7 inches (387.9 centimeters); GBU-31 (v) 3/B: 148.6 inches (377.4 centimeters); GBU-32 (v) 2/B: 119.5 inches (303.5 centimeters)  
**Weight:** (JDAM and warhead) GBU-31

(v) 2/B: 2,036 pounds (925.4 kilograms); GBU-31 (v) 3/B: 2,115 pounds (961.4 kilograms); GBU-32 (v) 2/B: 1,013 pounds (460.5 kilograms)  
**Wing Span:** GBU-31: 25 inches (63.5 centimeters); GBU-32: 19.6 ins. (49.8 centimeters)

**Range:** Up to 15 miles (24 kilometers).

### **Joint Stand-off Weapon (JSOW)**

The joint standoff weapon is an air-launched "drop-and-forget" weapon that is capable of approximately 40 nautical mile stand-off ranges. JSOW provides the fleet with a strike interdiction capability against soft targets such as fixed and relocatable air defense elements, parked aircraft command and control facilities, light combat vehicles, industrial elements and enemy troops. Currently, two variants of JSOW are planned: AGM-154A, that uses general-purpose submunitions and JSOW C that employs a unitary type warhead.

**Dimensions:** 160 inches (4.1 meters); box shaped diameter 13 inches (33.02 cm) on a side; 106 inches (2.69 meters) wingspan

**Weight:** From 1,065 pounds (483 kilograms) to 1,500 pounds (681 kilograms)

**Range:** Low altitude launch - 15 nautical miles (27.78 kilometers), High altitude launch - 65 nautical miles (120.38 kilometers)

**Warhead(s):** BLU-97—Combined effects bomblets, BLU-108—Sensor fused weapon, Broach multi-stage warhead.

# U.S. NAVY Owner's & Operator's AllHANDS Manual 2004

### **HARM (High-Speed Anti-Radiation Missile)**

HARM is the standard anti-radar missile in the U.S. inventory. It's used as both a strike-protection and anti-ship weapon. First deployed aboard USS *Kitty Hawk* (CV 63) in January 1984, it was used in combat in April 1986 during raids on Libya.

**Dimensions:** 10 m x 13 ft. 7 in. x 44 in. wingspan

**Weight:** 798 lbs.

**Warhead:** 146 lbs.

**Range:** Depends on launch speed/altitude

**Propulsion:** Dual-thrust rocket motor (Mach 2+).

## HARPOON/SLAM-ER

The *Harpoon* and *Stand-Off Land Attack Missile - Expanded Response* (SLAM-ER) missiles are derivatives from the original *Harpoon*, which was conceived in 1965.

### **Harpoon**

Air/surface-launched, anti-ship, all-weather cruise missile. Originally designed as an air-to-surface missile for the P-3 *Orion*, the *Harpoon*, which entered service in 1977, can now be carried by virtually all naval platforms.

**Dimensions:** 12.6 ft. long - air launched; 15.2 ft. long - surface launched.

**Weight:** 1,160 lbs. (air launch), 1,459 lbs. (ASROC launcher), 1,520 lbs. (SAM launcher), 1,523 lbs. (capsule/canister launch)

**Speed:** High subsonic speeds

**Warhead:** 488.5 lbs. HE (blast; semi-armor piercing)

**Propulsion:** Turbojet (cruise) w/solid-fuel booster for ship launch

**Range:** 75 nm.

### **Stand-Off Land Attack Missile-Expanded Response (SLAM-ER)**

SLAM-ER is an upgrade to the SLAM and is currently in production. SLAM-ER has a greater range (150+

miles), a titanium warhead for increased penetration and software improvements which allow the pilot to retarget the impact point during the terminal phase of attack. It is also the first land-attack missile equipped with automatic target acquisition for precision targeting.

### **Maverick**

The *Maverick* is a short-range, air-to-surface, tactical missile. The version used by the Navy carries a warhead designed to penetrate large, hard targets. First deployed in August 1972.

**Dimensions:** 8.2 ft. long; 12 in.

diameter; 2.4 ft. wing span

**Weight:** 635 lbs.

**Warhead:** 300 lbs.

**Propulsion:** Two-stage, solid-fuel rocket motor

**Speed:** Supersonic

**Range:** Approx. 14 nm.



High Speed Anti-Radiation Missile (HARM) on an *EA-6B Prowler*.  
Photo by PH3 Todd Frantom



## Tomahawk Cruise Missile

An all-weather, ship- or submarine-launched, land attack cruise missile. *Tomahawks* have proven to be highly survivable weapons due to their low radar detectability and terrain/wave-skimming flight. First deployed in 1986. More than 1,900 have been used in combat operations since 1991.

**Dimensions:** 18.3 ft. long (20.6 ft. with booster); 20.4 in. diameter; 8.9 ft. wingspan  
**Weight:** 2,650 lbs. (3,200 lbs. with booster)  
**Warhead:** 1,000 lbs. (conventional) or conventional submunitions dispenser with combined-effect bomblets  
**Propulsion:** Turbojet (cruise); solid-fuel booster (launch)  
**Speed:** Subsonic  
**Range:** 870 nm. (land attack/ conventional warhead).

## Penguin Anti-ship Missile

The Norwegian-designed and built *Penguin* anti-ship missile is carried aboard Lamps III helicopters. First deployed in 1993.

**Dimensions:** 10 ft long; 11.2 in. diameter; 39 in. wingspan  
**Weight:** 847 lbs.  
**Propulsion:** Solid-fuel rocket motor/solid-fuel booster  
**Warhead:** 265 lbs., semi-armor piercing  
**Range:** 25 nm.  
**Speed:** Mach 1.2.

## ANTI-AIR WARFARE (AAW) Aircraft Guns

### M61A1

This 20mm Gatling gun, which also forms the basis for the *Phalanx* Close-In Weapons System (see "Anti-aircraft Warfare" section), is mounted aboard the F/A-18 *Hornet* and F-14 *Tomcat*.

**Caliber:** 20mm  
**Muzzle Velocity:** 3,400 ft./sec.  
**Rate of Fire:** 4,000 or 6,000 rounds/min.

**Weight:** 841 lbs. total (gun, feed system, ammunition).

## SURFACE-TO-AIR MISSILES

### Rolling Airframe Missile (RAM)

Developed jointly with the Federal Republic of Germany, RAM provides ships with a low-cost, self-defense system against anti-ship missiles.

**Dimensions:** 9.25 ft. long; 5 in. diameter; 1.5 ft. wingspan  
**Weight:** 162 lbs.  
**Warhead:** 25 lbs.  
**Propulsion:** Solid-fuel rocket  
**Range:** 5 nm.  
**Speed:** Supersonic.

### Standard Missile-2 (SM-2)

Designed as a surface-to-air and surface-to-surface missile, the *Standard* missile is currently employed in two variations: *SM-2 MR* (Medium Range) and *SM-2 ER* (Extended Range). The first *Standard* missile entered the fleet in 1970. The *SM-2 ER* arrived in 1981.

### SM-2 MR

**Dimensions:** 14.7 ft. long; 13.5 in. diameter; 3.6 ft. wingspan  
**Weight:** 1,380 lbs.  
**Warhead:** Proximity fuse/ high-explosive  
**Propulsion:** Dual thrust/ solid-fuel rocket  
**Range:** 40 to 90 nm. (*SM-2 MR*).

### SM-2 ER

**Dimensions:** 26.2 ft long; 13.5 in. diameter; 5.2 ft. wingspan  
**Weight:** 2,980 lbs.  
**Warhead:** Proximity fuse/ high-explosive  
**Propulsion:** Two-stage/solid-fuel rocket; sustainer motor and booster motor  
**Range:** 65 to 100 nm.

## AIR-TO-AIR MISSILES

### Advanced, Medium-Range, Air-to-Air Missile (AMRAAM)

An all-weather, all-environment, radar guided missile developed as a follow-on to the *Sparrow* missile series. AMRAAM is smaller, faster, lighter and has improved capabilities against very low-altitude and high-altitude targets in an electronic countermeasure environment. Its active radar, in conjunction with an inertial reference unit and microcomputer system makes the missile less dependent on the aircraft fire control system enabling the pilot to aim and fire several missiles at multiple targets. The AMRAAM is a result of a joint U.S. Navy and U.S. Air Force development effort and is in service with numerous NATO and Allied countries. The AMRAAM was deployed in September 1991 and is carried on the F/A-18 *Hornet*.

**Dimensions:** 12 ft. (long); 7 in. diameter; 21 in. wingspan  
**Weight:** 335 lbs.  
**Propulsion:** High performance, solid fuel rocket motor  
**Warhead:** Blast fragmentation; high explosive  
**Speed:** Supersonic.

### Phoenix Missile

The Navy's only long-range, air-to-air missile. The missile has been designed for use in an all-weather, heavy-jamming environment. First deployed in 1974.  
**Dimensions:** 13 ft. long; 15 in. diameter; 3 ft. wing span  
**Weight:** 1,024 lbs.  
**Propulsion:** Solid-fuel rocket motor  
**Warhead:** 135 lbs.; proximity fuse, high explosive  
**Range:** In excess of 100 nm  
**Speed:** In excess of 3,000 mph.

### Sparrow

A highly-maneuverable, all-weather, beyond-visual-range, semi-active radar homing air-to-air missile used by the United States, NATO and other allied forces. A shipboard version, the *Sea Sparrow*, provides U.S. Navy and NATO

ships with an effective, anti-air weapon. First deployed in 1958, numerous models and upgrades have occurred to the *Sparrow* missile family. Current air-to-air versions are carried on the F-14 and F/A-18 aircraft.

**Dimensions:** 12 ft. long; 8 in. diameter; 3.4 ft. wingspan  
**Weight:** 500 lbs.  
**Warhead:** 88 lbs. annular blast fragmentation  
**Propulsion:** Solid-fuel rocket motor  
**Speed:** Supersonic.

### Sidewinder

The *Sidewinder* is a short-range, infrared, within-visual-range, air-to-air missiles used by the United States, NATO and other allied nations. The missile has been through a number of modernizations and the current fleet weapon is the AIM-9M. The missile is an all-aspect heat-seeking missile with improved capabilities against counter-measures. A major modification to the AIM-9M *Sidewinder* is the AIM-9X. The AIM-9X is a joint U.S. Navy and U.S. Air Force program that upgrades the missile with a staring focal plan array in the seeker, and extremely agile airframe and state-of-the-art signal processors resulting in enhanced target acquisition, missile kinematics and improved infrared counter-countermeasure capabilities. The missile's high off-boresight capability can be coupled to a helmet-mounted cueing system that will revolutionize the way that air-to-air missiles are employed. The *Sidewinder* is currently deployed on the F-14, F/A-18, AV-8 and AH-1 aircraft.

**Dimensions:** 9.6 ft. long; 5 in. diameter; 2.1 ft. wingspan  
**Weight:** 190 lbs.  
**Propulsion:** High performance, solid-fuel rocket motor  
**Warhead:** 20.8 blast fragmentation  
**Speed:** Supersonic.



MK-45 5-inch gun (5" 54 cal.)  
Photo by PH2 Bradley J. Sapp

## SHIPBOARD GUNS

### MK-45 – 5-inch/54 caliber lightweight gun

This 54-caliber, lightweight gun provides surface combatants accurate naval gunfire against fast, highly-maneuverable, surface targets, air threats and shore batteries during amphibious operations.

**Caliber:** 5 inch/54 inch  
**Shell Weight:** 70 lbs.  
**Firing Rate:** 20 rounds per minute  
**Muzzle Velocity:** 2,650 ft./sec  
**Range:** 13 nm  
**Magazine Capacity:** 475 to 500 rounds  
**Weight:** 47,820 lbs.

### MK-38 – 25 mm machine gun system

The naval version of the Army Bushmaster, or "Chain Gun." This single-barrel, air-cooled, heavy machine gun meets the needs of ships throughout the fleet, especially those operating in the Persian Gulf.

**Caliber:** 25mm  
**Round Weight:** 1.1 lbs.  
**Muzzle Velocity:** 1,100 m/sec  
**Range:** 2,700 yds.  
**Type of Fire:** Single shot; 175 rounds/ min. in automatic.

### MK-75 – 76mm/62 caliber 3-inch gun

Best suited for use aboard smaller combat vessels, the MK-75 features rapid-fire capability with low manning requirements. The gun was approved for fleet use in 1975 and was first deployed aboard USS *Oliver Hazard Perry* (FFG 7) in 1978.

**Caliber:** 3-inch/62  
**Rate of Fire:** 85 rounds/min.  
**Muzzle Velocity:** 925 m/sec  
**Range:** 10 nm  
**Weight:** 7.35 tons.

### Phalanx Close-In Weapons System (CIWS)

The *Phalanx* CIWS combines a 20mm Gatling gun with search and tracking radar to provide surface ships with terminal defense against anti-ship missiles. The system underwent operational tests and evaluation aboard USS *Bigelow* (DD 942) in 1977 and went into production in 1978 with the first systems installed aboard USS *Coral Sea* (CV 43) in 1980. The original versions used rounds made from depleted uranium that have since been replaced by tungsten rounds.  
**Caliber:** 20mm  
**Rate of Fire:** 1,000-3,000 rounds/min.  
**Muzzle Velocity:** 3,650 ft./sec  
**Range:** 6,000 yds.



## 60mm Mortar

Often combined with the M-60 machine gun, the 60mm mortar is used aboard patrol boats (PBs).

**Caliber:** 60mm

**Rate of Fire:** 10 rounds/min. (trigger mode); 18 rounds/min. (drop mode)

**Muzzle Velocity:** 500 ft./sec

**Range:** 1,850 to 2,000 yds.

## ANTI-SUBMARINE WARFARE (ASW) Torpedoes

### MK-46

The MK 46 MOD 5A(S) torpedo achieved its initial operational capability and was introduced into the fleet in 1979. It can be launched from fixed and rotary wing aircraft and surface combatants' VLA and torpedo tubes. Full-up MK 46 torpedoes are no longer being produced. In 1987, a major upgrade program enhanced the performance of the MK 46 Mod 5A(S) in shallow water.

A service life extension program was initiated in 1992 to extend the life of the MK 46 Mod 5A(S), convert it to the MK 46 Mod 5A(SW), and to provide additional shallow water and bottom avoidance modes. The MK 46 Mod 5A(SW) was introduced to the Fleet in 1996.

**Dimension:** 8.5 ft. long, 12.75 in. diameter

**Weight:** 512 lb.

**Range:** More than 8,000 yds.

**Speed:** 45 Knots

**Propulsion:** Two-speed, reciprocation external combustion

**Warhead:** 96 lbs. of PBXN-103

**Depth:** Greater than 1,200 ft.

### MK-48

The MK-48 Torpedo is a long-range, high-speed, deep-depth, wire-guided acoustic homing weapon designed to combat slow diesel submarines, fast, deep diving nuclear submarines and high-performance surface ships and can be carried aboard all Navy submarines. Developed by the Applied Research Laboratory, Pennsylvania State University, and Westinghouse Electric Corporation, Baltimore, the MK-48 and its subsequent variants have been in service with the Navy since 1972.

Additional efforts resulted in development of the digital advanced capability (ADCAP) MK-48 MOD 5 that is carried by *Los Angeles* and *Seawolf*-class attack submarines and some *Ohio*-class ballistic missile submarines. The MK-48 MOD 5 became operational in 1988 and was approved for production a year later. The newest variant is designated the MK-48 MOD 6.

**Dimension:** 19 feet long, 21 in. diameter

**Weight:** 3,434 lbs. (MK-48) 3,695 (MK-48 ADCAP)

**Range:** Greater than 8 nm

**Speed:** Greater than 28 Knots

**Propulsion:** Positive displacement

Piston-type engine with OTTO fuel II



Tactical *Tomahawk* cruise missile  
U.S. Navy photo

### MK-50

The MK-50 torpedo began low-rate initial production in 1987. The MK-50 can be launched from all ASW aircraft and from torpedo tubes aboard surface combatants. It is an advanced lightweight digital torpedo designed for use against faster, deeper-diving and more sophisticated submarines.

The stored chemical energy propulsion system develops full power at all depths and is capable of multi-speed operations required by the tactical situation. Although full-up torpedoes have not been produced since 1993, the Block I software upgrade program has enhanced the MK 50's shallow water and counter-measure capability. Also a new longer-lasting, safer and cheaper stored chemical energy propulsion system is currently being introduced.

**Dimension:** 9.3 ft. long, 12.75 in. diameter

**Weight:** 750 lbs.

**Range:** In excess of 14,000 yds.

**Speed:** Multiple speeds with a top speed in excess of 40 knots

**Propulsion:** Close-cycle Stored Chemical Energy Propulsion System

**Warhead:** Approximately 100 lbs. high explosive shaped charge

**Depth:** 3,600 ft.

## MINES

### MK-67 Submarine Launched Mobile Mine (SLMM)

Based on the MK 37 torpedo, the SLMM is a submarine-deployed mine used for covert mining in hostile environments. The MK-67 began active service in 1987.

**Type:** Submarine-laid bottom mine.

**Dimensions:** 13.4 ft. long; 19 in. diameter

**Detection System:** Magnetic/seismic target detection devices (TDDs)

**Depth Range:** Shallow water



Recoverable Exercise Torpedo  
Photo by JOC Alan J. Baribeau

**Weight:** 1,735 pounds

**Explosives:** 515 pounds of high explosive

### MK-65 Quickstrike

The *Quickstrike* is a family of shallow-water, aircraft-laid mines used primarily against surface ships. The MK 65 mine is a thin-walled mine. MK-62 and MK-63 mines are converted, general-purpose bombs. All were approved for service use in the early 1980s.

**Type:** Aircraft-laid bottom mine.

**Dimensions:** MK-65 mine is 10.7 ft. long; 21 in. diameter (29 in. across fins;

MK-62 and MK-63 mines vary in length depending on flight gear used

**Detection System:** Magnetic/seismic/or magnetic/seismic/pressure target detection devices (TDDs) are used on various models.

**Depth Range:** Shallow water

**Weight:** MK-62, MK-63 and MK-65 are 500, 1,000 and 2,000 pound class respectively

**Explosives:** Various loads.

### MK-56

The MK-56 mine is primarily an ASW mine (the oldest still in use). It reached initial operating capability in 1962.

**Type:** Aircraft-laid, moored mine

**Dimensions:** 9.5 ft. long (without fairing); 23 in. diameter

**Detection System:** Total field magnetometer

**Depth Range:** Intermediate water

**Weight:** 2,000-pound class

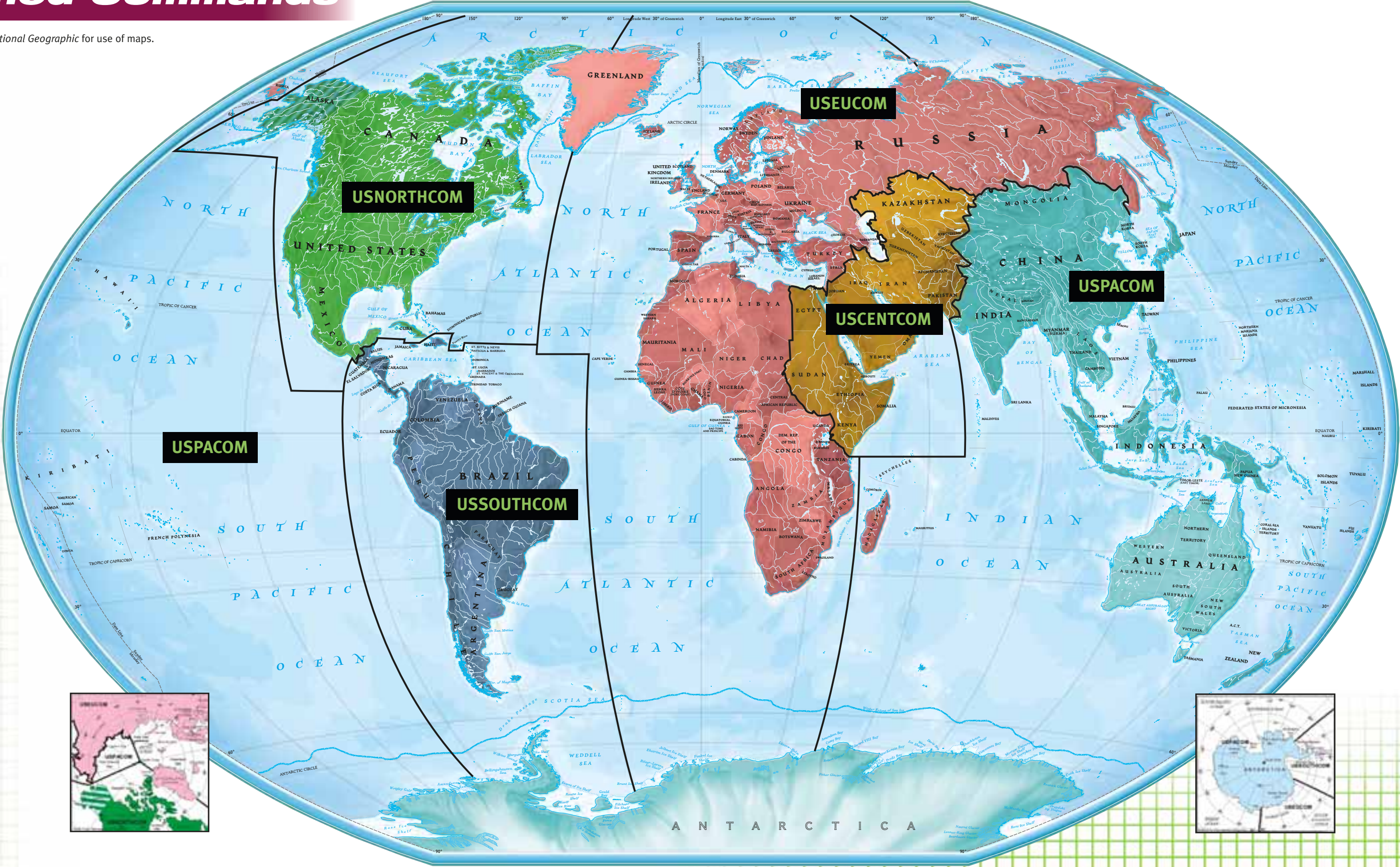
**Explosives:** 360 pounds of high explosive.

**Sources:** Strategic Systems Programs; Naval Sea Systems Command, Naval Air Systems Command, The U.S. Naval Institute Guide to World Naval Weapons Systems, 1997-1998



# Unified Commands

Thank you to *National Geographic* for use of maps.





his  
Recruiter  
warned him  
it would be Tough.



But, he's up to the challenge of being a...



...are you?